

1/30

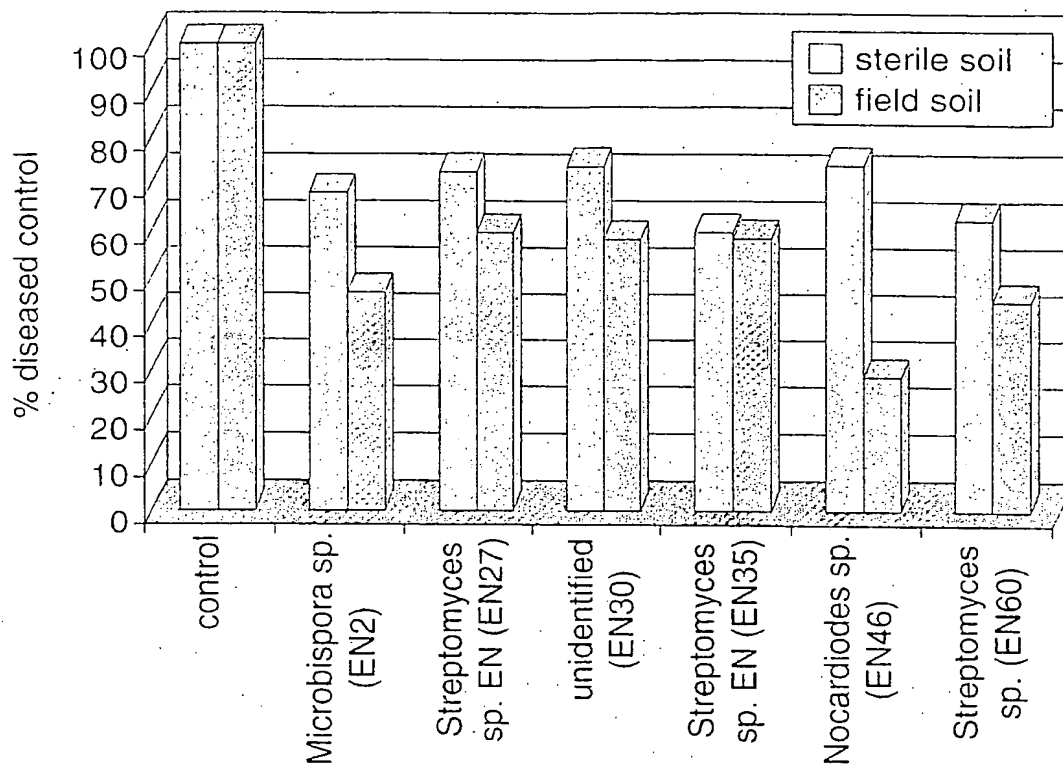


Figure 1

2/30

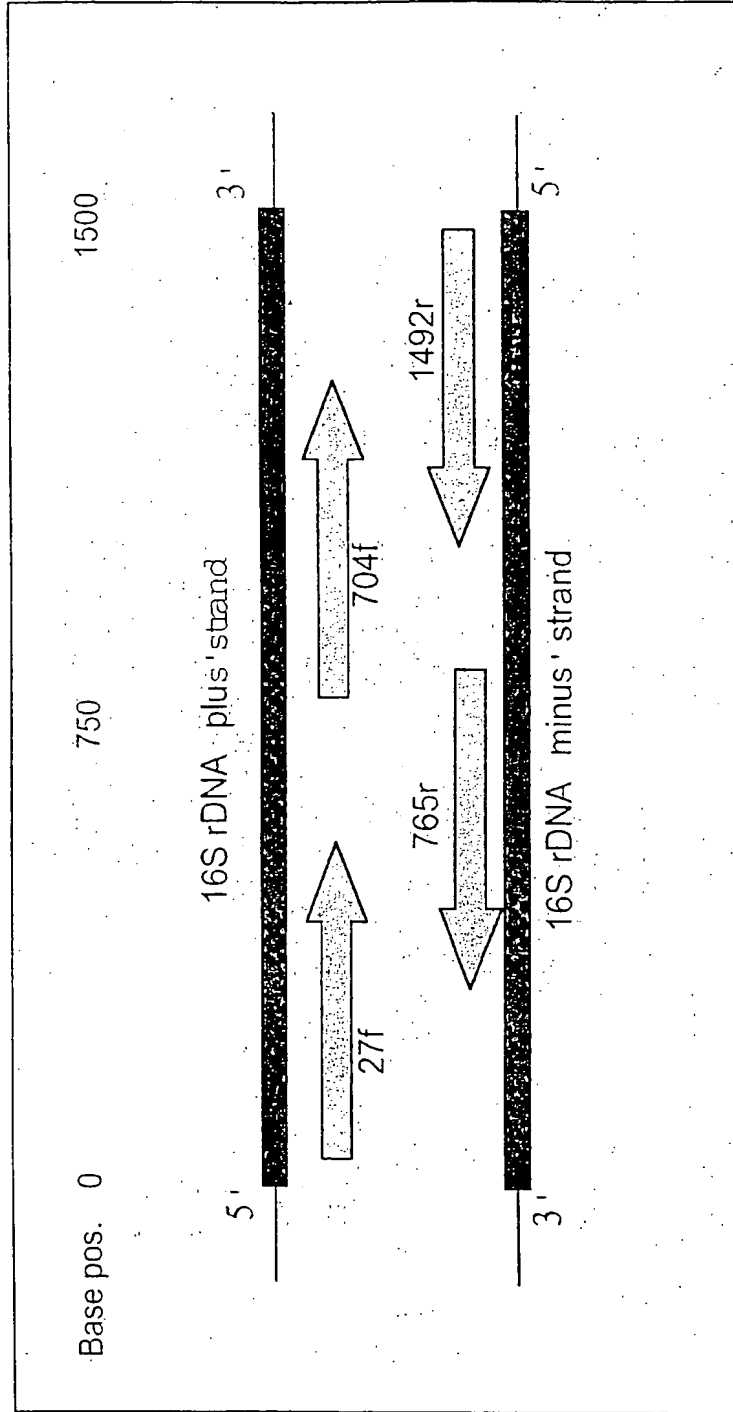


Figure 2

3/30

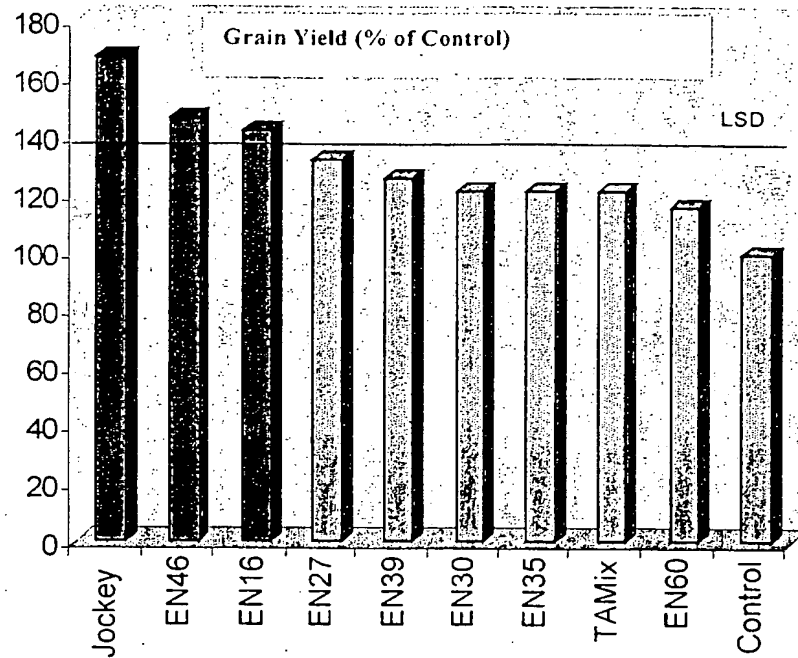
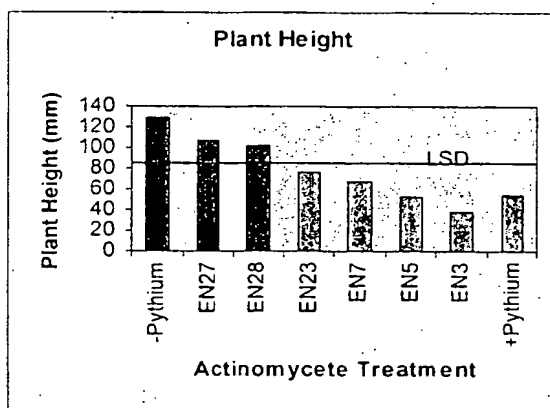
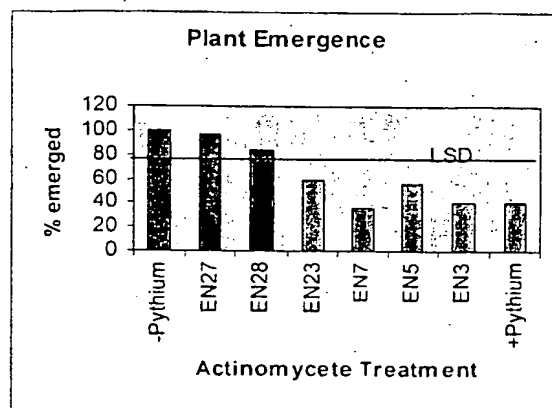


Figure 3

4/30

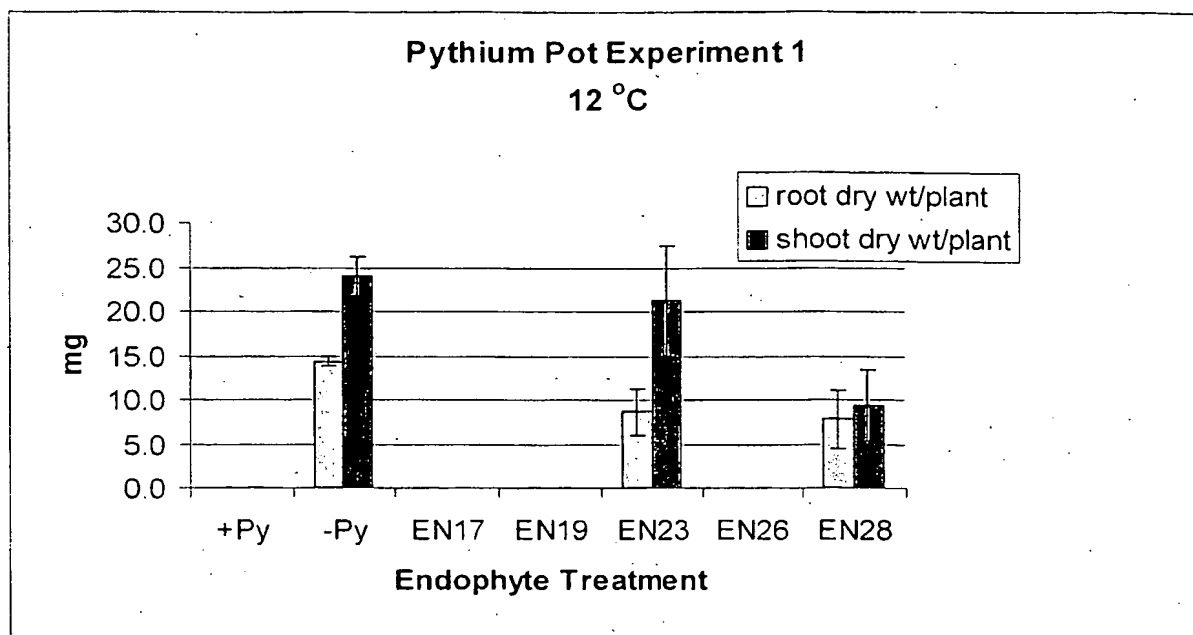


**Figure 4**



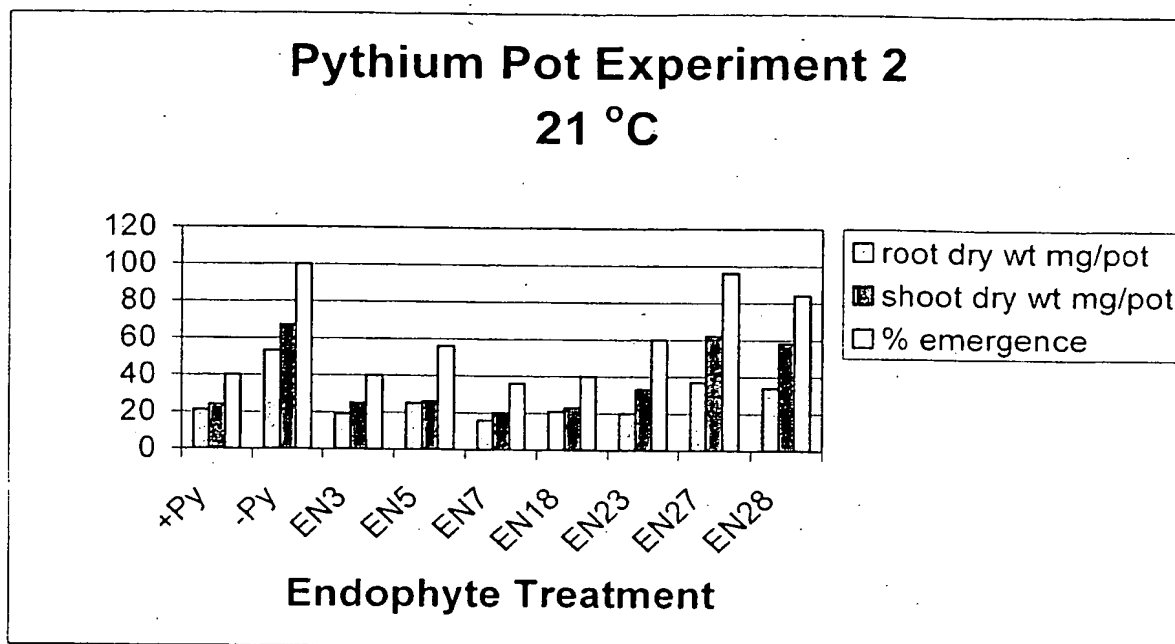
**Figure 5**

5/30



**Figure 6**

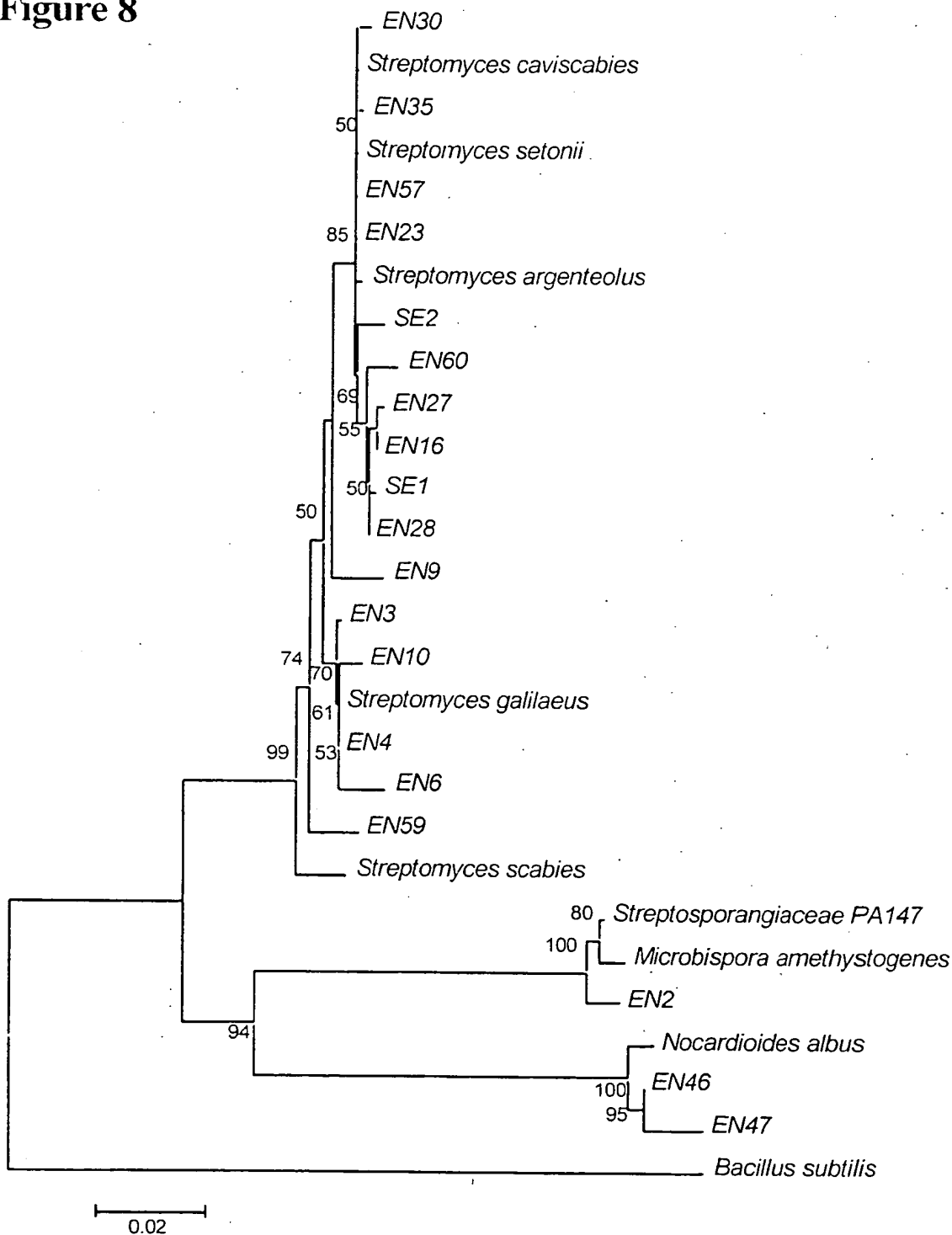
6/30



**Figure 7**

7/30

Figure 8



8/30

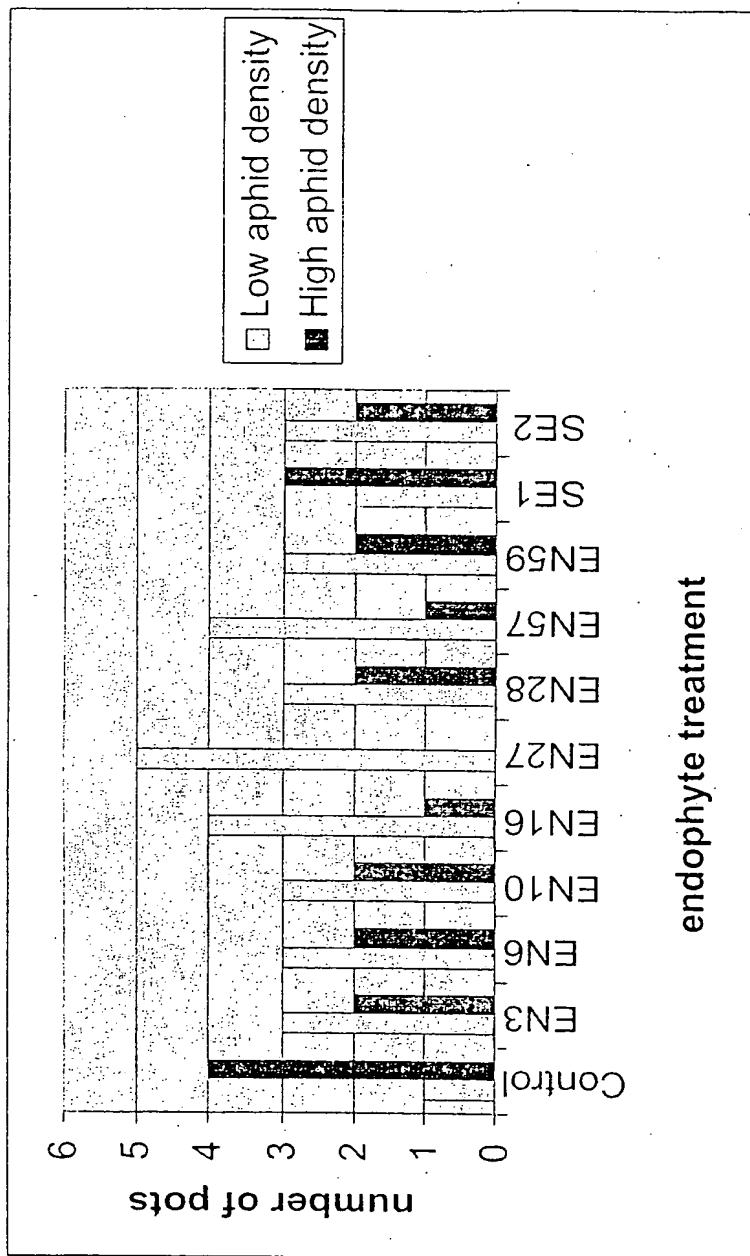


Figure 9



9/30

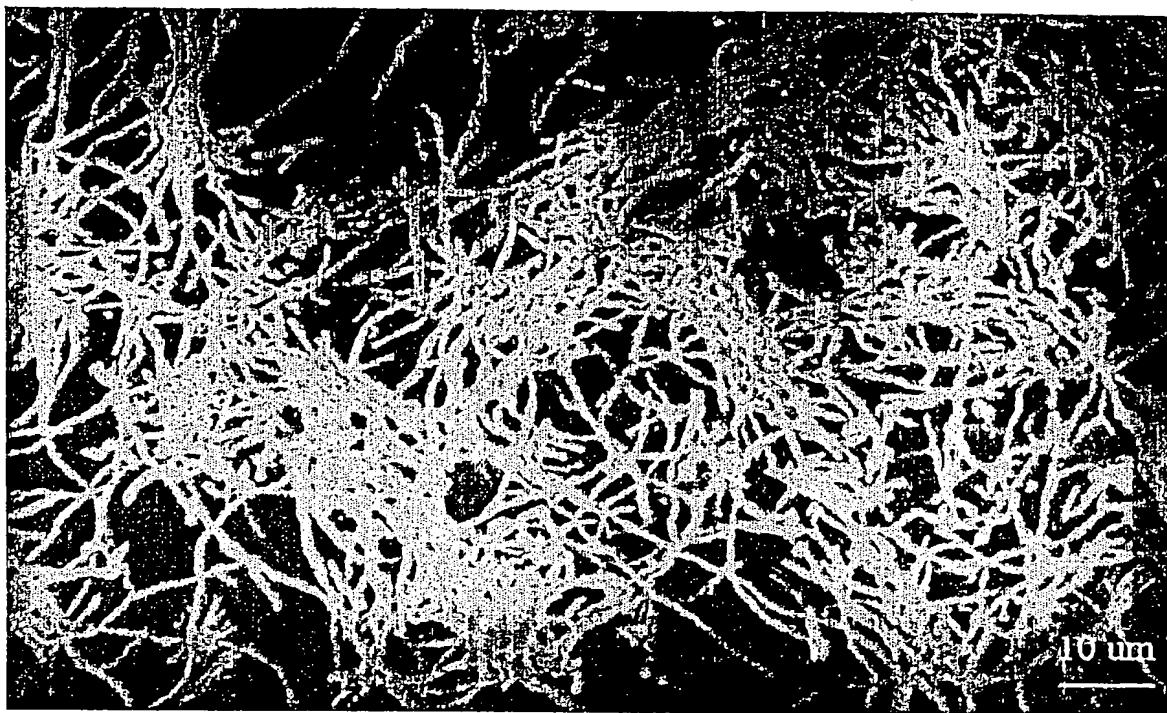


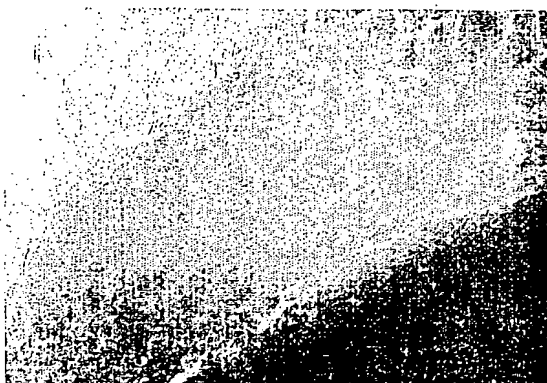
Figure 10

10/30

11.1 Blue excitation/ green emission



11.2 UV excitation/ blue emission



11.3 Image enhanced merge



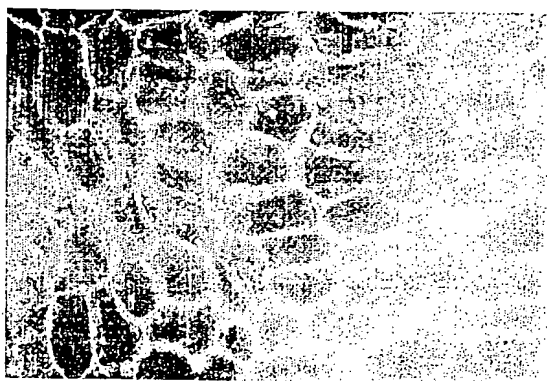
Figure 11

11/30

12.1 Blue excitation/ green emission



12.2 UV excitation/ blue emission



12.3 Image enhanced merge

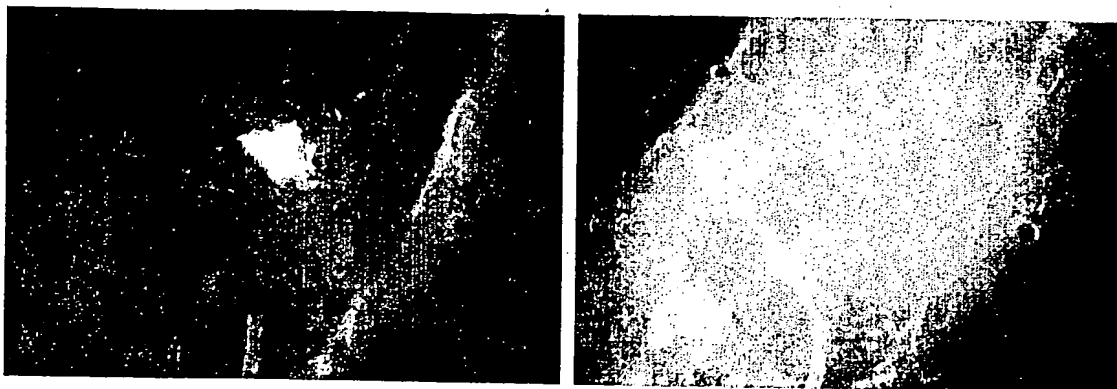


Figure 12

12/30

13.1 Blue excitation/ green emission

13.2 UV excitation/ blue emission



13.3 Image enhanced merge

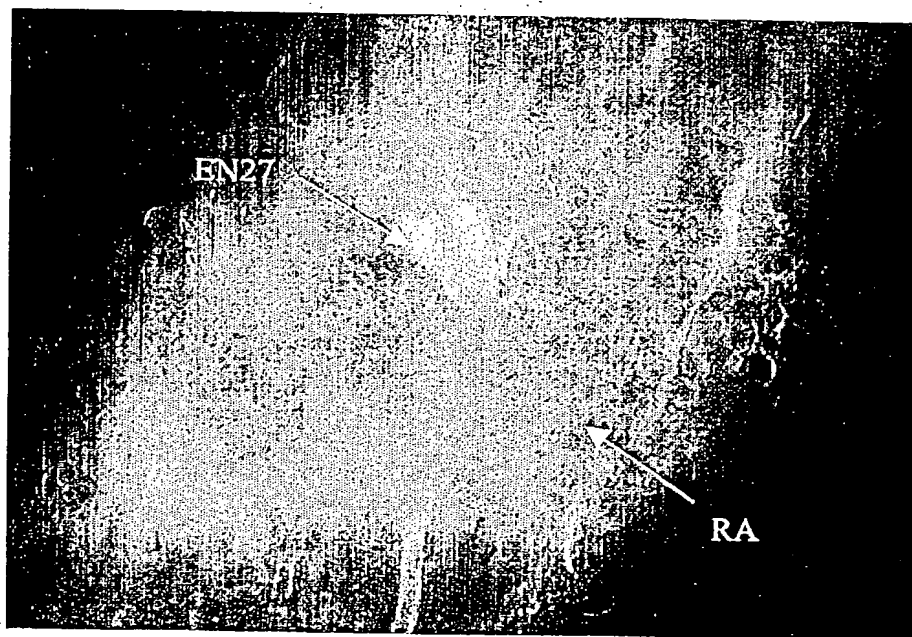
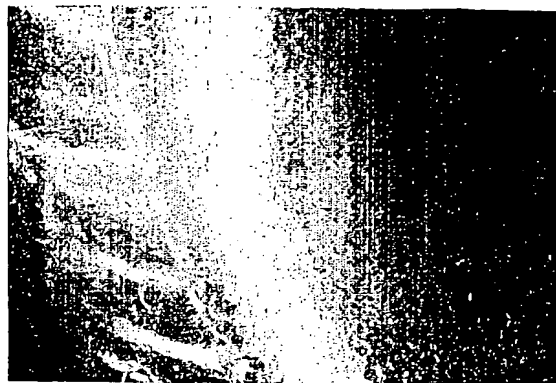


Figure 13

13/30

14.1 Blue excitation/ green emission

14.2 UV excitation/ blue emission



14.3 Image enhanced merge

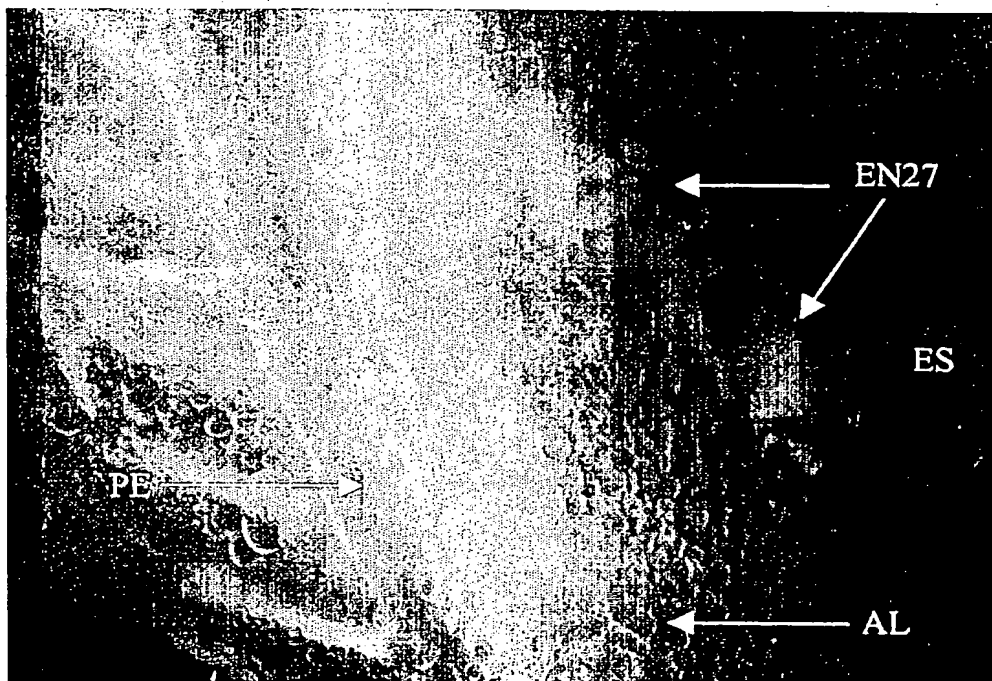


Figure 14

14/30

FIGURE 15

EN2

SEQ ID NO:1

CTTAACACATGCAANTCAAGCGGAAAGGCCCTTCGGGGTACTCAANCGGCNAACGGGTGATTAACACNTGANTAA  
CCTGCCCCCTGACTCTGGGATAANCCCTGGGAACTGGGTCTAATACCGGATACAACCATTCTCNCATGGGATGGT  
GGTGGAAANTTTTTNCGGTTGGGGATGGGCTCGCGGCTATCACCTTGTGGTGGGGTGTGGCCTACCAAGGCg  
ACgAACGGTAgCCCCCTGAgAGGGCgACCGGCCaCaCTGGGACTGAgACaCCGCCgAACTCCTaCgGGAGGCA  
gCACTgGGGAATaTTGCCATGGGCGGAAGCCTGACGCAGNGACGCCGCTGGGGGATGACGGCCTTNGGGTTGT  
AAACCTN'TTTCAGCAGGGACGAAGTTGACGTGTACCTGTAGAAGAAGCGCCGGCTAAATANGTGCCAGCAGCCGC  
GGTAATANGTAGGGCGCGAGCGTTNTCCGGAATTATTGGGCGTAAAGAGTTTGTAGGTGGCTTGTTCGTTTGCC  
GTGAAAGCCCCGTGGCTTAANTACGGGTTTGGCGTGGATACGGGCAGGCTAGAGGCTGGTAGGGGCAAGCGGAATT  
CCTGGTGTAGCGGTGAAATGCGCAGATATCAGGAGGAACACCGGTGGCGAAGGCGGCTTGTGGGCCAgTTCtGA  
CGGTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTAGATACCTTGGTAGTCCACGCTGTAAACGTTGGGCGCTA  
GGTGTGGGGGTCTTCCACGATCTCTGTGCCGTAGCTAACGCATTAAGCGCCCCGCTGGGGAGTACGGCCGCAAG  
GCTAAAACCTCAAAGGAATTGACGGGGGGCCCGCACAAGCGCGGAGCATGTTGCTTAATTGACGCAACGCGAAGA  
ACCTTACCAAGGTTTGACATACACCGGAAACACTCANANATGGGTGCCTCCTTTGGACTGGTGTACAGGTGGTGC  
ATGGCTGTcNNCACCTCGTGTcGTNAGATGTNGGGTTAAGTCCCgCAACGANCGCAACCCTTGGTTCCATGTTG  
CCAGCACNCCCTTTGNGGTGGTGGGGACNCATGGGANAATGCCGGGGTCNACTCNGGAGGAAGGTGGGGATGACG  
TCAAGTNATCNTGCCCCCTTATGTTCTTGNNGTG

EN3

SEQ ID NO:2

GCTGGCGGCGTGCTTAACACATGCAAGTGAACGATGAACCACTTCGGTGGGGATTAGTGGCGAACGGGTGAGTA  
ACACGTGGGCAATCTGCCCTTCACTCTGGGACAAGCCCTGGAAACGGGGTCTAATACCGGATAACACTNCTGCTC  
TCATGGGCAGGGGTTAAAAGCTCCGCGGCTGAAGGATGAGCCCGCGGCCTATCAGCTTGTGGTGAAGTAATGGC  
TACCAAGGCGACGACGGGTAGCCGGCCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCCAGACTCC  
TACGGGAGGCAGCAGTGGGGAATATTGCaCaATGGGCGAAAGCCTGATGCAGCGACGCCGCTGAGGGATGACG  
GCCTTCGGGTTGTAAACCTCTTTCAGCAGGGAAGAAGCGAAAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAAC  
TACGTGCCAGCAGCCGCGGTAATACGTAgGGCGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGAGCTtGTAgGC  
GGCTTGTACAGTCGGGTGTGAAAGCCCCGGGGCTTAACCCcGGGTCTGCATTGATACGGGCTAgCTAgAGTGTGG  
TAGGGGAGATCGGAATTcTGGTGTAGCGGTGAAATGCgCAGATATCAGGAGGAACACCGGTGGCGAAGGCGGaT  
cTcTGGGCCATTACTGACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTAGATACCTGGTAGTCCACGCC  
GTAAACGGTGGGAAGTAGGTGTTGGCGACATTCCACGTCTGTCGGTGCCGAGCTAACGCATTAAGTTCCCCGCCT  
GGGGAGTACGGCCGCAAGGCTAAAACCTCAAAGGAATTGACGGGGGGCCCGCACAAGCAGCGGAGCATGTGGCTTAA  
TTCGACGCAACGCGAAGAACCTTACCAAGGCTTGACATACACCGGAAAGCATCAGAGATGGTGGCCCCCTTGTGG  
TtCGGTGTACAGGTGGTGCATGGCTGTCTGTCAGCTCGTGTCTGAGATGTTGGGTAAAGTCCCGCAACGAGCGCA  
ACCCTTGTtCTGTGTTGCCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGAGACCGCCGGGTCAACTCGGAG  
GAAGGTGGGGACGACGTCAAGTCATCATGCCCTTATGTCTTGGGCTGCACACGTGCTACAATGGcCGGTACAAA  
GAGCTGCGATACCGTGAGGTGGAGCGAATCTCAAAAAGCCGGTCTCagTTCCGATTGGGGTcTGCAACTCGAcCC  
CATGAAGTCGGAGTTGcTAATAATCgCANATCagCATTGCTGCGGTGAATACGTTcCCGGGCCTTGTAACcACCG  
CCcGTACGTcACGAAAGTCGgTAAcACCCgAAgCCGGTGGCCAACCCCTTgTGGGAGGgAGCTGTCTGAAGGTGG  
GACTGGCGATTG

15/30

[FIGURE 15 CONTINUED]

EN16

SEQ ID NO:7

GCTTNTTGGTGGGNCNATGGCCTACCAAGGNGAGGACGGNTANCCNGCCTGNGAGGGAGACCGNCCACACTGGGA  
ATGNGANACGGCCCAGAATCCTACGGGAGGCAGCANNGGGGAANATTGCACAANGGGCGAAAGCCTGATGCAGNG  
ANGCCGCGTGAGGGAAGACGGCCTTTGGGTTGTAAACCTNTTTNAGCAGGGAAGAAGCGAAAGTGACGGTACCTG  
CAGAAGAAGCGCCGGCTAANTANGTGCCAGCAGCCGCGTAATANGTAGGGCGCAAGCGTTGTCCGGAATTATTG  
GGCGTAAAGAGCTTGTAGGCGGCTTGTGANGTNGGATGTGAAAGCCCCGGGGCTTAACCCCGGGTTTGCATTTGAT  
ACGGGCTAGCTAGAGTGTGGTAGGGGAGATNGGAATTCCTGGTGTAGCGGTGAAATGCGCAGATATCAGGAGGAA  
CACCGGTGGCGAAGGCGGATCTCTGGGCCATTACTGACGCTGAGGAGCGAAAGCCTGGGGAGCGAACAGGATTAG  
ATACCTTGGTAGTCCACGCCGTAAACGTTGGGAACCTAGGTGTTGGCGACATTCACGTCGTCGGTGCCGCAGCTA  
ACGCATTAAGTTCCCCCGCTGGGGAGTACGGCCGCAAGGCTAAAACTCAAAGGAATTGACGGGGGGCCCGCACAG  
CAGCGGAGCATGTGGCTTAATTCGACGCAACGCGAAGAACCTTACCAAGGCTTGACATATACCGGAAAGCATCAG  
AGATGGTGCCCCCTTGTGGTGGTATACAGGTGGTGCATGGCTGTCGTCAGCTCGTGTGCTGAGATGTTGGGTT  
AAGTCCCGCAACGAGCGCAACCCTTGTCTGTGTTGCCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGAGAC  
TGGGGGTCTGNAACTCGACCCCATGAANTCGGAGTTGCTAATAATCCCAAATTCANCATTGGTGCGGTGAATACT  
TCCCCGGCCTGGTACACNACCGCCCGTCAACTCACGAAAGTCGGTNAAACCCGAAACCGGTGGGCCAACCCCTTG  
TGGGAAGGAACTGGCCNAAGTGGGACTGGCGATTGGGAC

EN23

SEQ ID NO:10

ACGAACGCTGGCGGCGTGCTTAACACATGCAAGTGAACGATGAAGCCGCTTCGGTGGTGGATTAGTGGCGAACG  
GGTGAGTAACACGTGGGCAATCTGCCCTTCACTCTGGGACAAGCCCTGGAAACGGGGTCTAATACCGGATAACAC  
TCTGTCCCGCATGGGACGGGGTTGAAAGCTCCGGCGGTGAAGGATGAGCCCGCGGCCTATCAGCTTGTGGTGGG  
GTAATGGCCTACCAAGGCGACGACGGGTAGCCGGCCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCC  
CAGACTCCTACGGGAGGCAGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGCGACGCCGCGTGAGG  
GATGACGGCCTTCGGGTTGTAAACCTCTTTCAGCAGGGAAGAAGCGAAAGTGACGGTACCTGCAGAAAGAAGCGCC  
GGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGGCGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGAGCT  
CGTAGGCGGCTTGTACGTCGGATGTGAAAGCCCCGGGGCTTAACCCCGGGTCTGCATTCGATACGGGCTAGCTAG  
AGTGTGGTAGGGGAGATCGGAATTCCTGGTGTAAGCGGTGAAATGCGCAGATATCAGGAGGAACACCGGTGGCGAA  
GGCGGATCTCTGGGCCATTACTGACGTCTGAGGAGCGAAAGCGTGGGgAgCGAACAGGATTAGATACCCTGgTAG  
TCCACGCCGTAAACGTTGGgAACTAGgTGTTGGCGACATTCCACGTCGTCGGTGCCGCAGCTAACGCATTAAGTT  
CCCCGCTTGGGAGTACGGCCGCAAGGCTAAAACTCAAAGGAATTGACGGGGGGCCCGCACAGCAGCGGAGCATG  
TGGCTTAATTCGACGCAACGCGAAGAACCTTACCAAGGCTTGACATATACCGGAAAGCATCAGAGATGGTGCCCC  
CCTTGTGGTGGTATACAGGTGGTGCATGGCTGTGCTCAGCTCGTGTGCTGAGATGTTGGGTTAAGTCCCGCAAC  
GAGCGCAACCCTTGTCTGTGTTGCCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGAGACTGCCGGGGTCAA  
CTCGGAGGAAGGTGGGGACGACGTCAAGTCATCATGCCCTTATGTCTTGGGCTGCACACGTGCTACAATGGCCG  
GTACAATGAGCTGCGATGCCGCGAGGCGGAGCGAATCTCAAAAAGCCGGTCTCAGTTCGGATTGGGGTCTGCAAC  
TCGACCCCATGAAGTCGGAGTTGCTAGTAATCGCAGATCAGCATTGCTGCGGTGAATACGTTCCCGGGCCTTGTA  
CACACCGCCCGTCACGTCACGAAAGTCGGTAACACCCGAAGCCGGTGGCCCAACCCTTGTGGGAGGGAGCTGTG  
AAGGTGGGACTGGCGATTG

16/30

[FIGURE 15 CONTINUED]

EN27

SEQ ID NO: 12

TTAANACATGCAANTCGAACGATGAACCCNGTTTCGGTGGTGGATTAGTGGCGAACGGTGAGTAANANGTGGGCA  
ATTTGCCCTTCATTTTGGACAAGCCCTGGAAACGGGTTTAATACCGGATAACATTTTNTCCCGCATGGGANGGGG  
TTGAAAGNTCCGGCGGTGAAGGATGAGCCCGCGCCTATNAGCTTGTGGTGGGGTAATGGCCTACCCAAGGGAG  
ACGGGTAGCCGGCCTGAGAGGGCGACCGGCCACACTGGGAATGAGANACGGCCCAGAATCCTACGGGAGGCAGCA  
GTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGCGANGCCGCGTGAGGGATGACGGCCTTNGGGTTGTAA  
ACCTTTTNNAGCAGGGAAGAAGCGAAAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAAATAAGTGCCAGCAGCC  
GCGGTAATAAGTAGGGCGCAAGCGTTGTCCGAATTATTGGGCGTAAAGAGCTTGTAGGCGGCTTGTCTANGTNGG  
ATGTGAAAGCCCCGGGNTTAACCCCGGGTTTGCATTTGATACGGGCTAGNTAGAGTGTGGTAGGGGAGATNGGAA  
TTCTGGTGTAGCGGTGAAATGCGCAGATATCAGGAGGAACACCGGTGGCGAAGGCGGATCTCTGGGCCATTACT  
GACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGTTGGGAAC  
TAGGTGTTGGCGACATTCCACGTCGTGCGTGCCGACGCTAACGCATTAAGTTCCCCGNCTGGGGAGTACGGCCGC  
AAGGCTAANACTCAAAGGAATTGACGGGGGCCCCGNACAAGCAGCGGANCATGTGGCTTAATTCGACGCANCGCGA  
AGAACCTTACCAAGGCTTGACATATACCGGAAAGCATCAGAGATGGTGCCCCCTTGTGGTTCGNTATACANGTGG  
TGCATGNTGTGTCGTACCTCGTGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCNACCCTTGNTCTGTGTT  
GNCANCATGCCCTTCGGGGNTGATGGGGACTCACAGGANAAGTGNCCGGGTCAACTCCGGANGAAGGTGGGTGAC  
GAAGTCAAGGTATCATGNCCCCTTATGTCTTGGTGCTGCACACGTGC

EN28

SEQ ID NO: 13

TTCGGNGGTGGANTAGNGGCGNACGGGNGACCAACANGNGGGCAATCCCCCTTCANTTTNGGACAACCCCTGGA  
AACGGGTNTAATAACCGGATAACANTTTNTCCCGCATGGGANGGGGTTGAAAGCTCCGGCGGTGAAGGATGAGC  
CCGCGGCCTATCAGCTTGTGGTGGGGTAATGGCCTACCAAGGCGACGACGGGTAGCCGGCCTGAGAGGGCGACC  
GGCCACACTGGGANTGAGANACGGCCCAGAATCCTACGGGAGGCAGCAGTGGGGAATATTGCACAATGGGCGAAA  
GCCTGATGCAGCGACGCCGCGTGAGGGATGACGGCCTTCGGGTTGTAAACCTTTTTCAGCAGGGAAGAAGCGAAA  
GTGACGGTACCTGCAGAAGAAGCGCCGGCTAAATANGTGCCAGCAGCCGCGGTAATANGTAGGGCGCAAGCGTTG  
TCCGGAATTATTGGGCGTAAAGAGNTTGTAGGCGGCTTGTCTANGTCGGATGTGAAAGCCCCGGGCTTAACCCCGG  
GTTTGCATTCGATACGGGCTAGCTAGAGTGTGGTAGGGGAGATCGGAATTCCTGGTGTAGCGGTGAAATGCCAG  
ATATCAGGAGGAACACCGGTGGCGAAGGCGGATcTcTGGGCCATTACTGACGcTGAGGAGCGAAAGCGTGGGgAG  
CGAACAGgAATTAGATACCCTGgTAGTCCACGCCGTAAACGTTGGgAAcTAGgTGTGGcGACATTCCACGTcGT  
CGgTGCCCGCAGCTAACGCATTAAGTTCCCCGCTGGGGAGTACGgCCCGCAAGGCTAAACTCAAAGGAATTGAC  
GGGGgCCCGCACAAAGCAGCGGAGCATGTGGCTTAATTCGACGCAACGCGAAGAACCTTACCAAGGCTTGACATAT

ACCGGAAAGCATCAGAGATGGTGCCCCCTTGTGGTTCGTATACAGGTGGTGCATGGCTGTGTCGTGAGCTCGTGTC  
GTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCTTGgTTCTGTGTGgCCAGCATGCCCTTCGGGGTGAT  
GGGGACTCACAGGAGACTGgCCGGGGTCAACTCGGAGGAAGGTGGGGACGACGTCAAGTCATCATGCCCTTATG  
TCTTGGGgCTGCACACGTGCTACAATGGCCGGTACAATGAGCTGCGATGCCGCGAaGGCGGAGCGAATCTCAAAA  
AaGCCGGTCTCAGTTCCGATTGGGGTCTGCAACTCGACCCCATGAAGTCGGAGTTGCTAGTAATCGCAGATCAGC  
ATTGCTGCGGTGAATACGTTCCCGGGCCTTGACACACCGCCCGTCACGTACGAAAGTCGGTAACACCCGAAGC  
CGGTGGTCCAACCCCTTGTGGGAGGGAGCTGTCAAGGTGGGACTGGCGATTGG



17/30

[FIGURE 15 CONTINUED]

EN46

SEQ ID NO:16

ATGCAAGTCGAGCGGAAAGGCCCTTCGGGGTACTCGAGCGGCGAACGGGTGAGTAACACGTGAGTTAATCTGCCC  
CAGGCTCTGGATACCCACCGGAAAACGGTGATTAATACCGAATACGACAACCGATTTGCATGATCTGGTgGTGNA  
AAGTTTTTCGGCCTGGGATGTGCTTCGCGGCCTATCAGCTTGTGGTGAGGTAATGGCTCACCCAAGGCTTCGAC  
GGTAGCCGGCCTGAGAGGGTGACCGNCCACACTGGGACTGAGACACGGCCCAGACTCCTACGGGAGGCAGCAGTG  
GGGAATATTGGACAATGGGCGGAAGCCTGATCCAGCAACGCCGCGTGAGGGATGACGGCCTTCGGGTTGTAAACC  
TCTTTCAGCACAGACGAAGCGCAAGTGACGGTATGTGCAAGAAGAAGGACCGGCAACTACGTGCCAGCAGCCGCG  
GTAATACGTAGGGTCCGAGCGTTGTCCGGAATTATTGGGCGTAAAGGGCTCGTAGGGCGTCTGTCCGCTCGGGAG  
TGAAAACCAGGTGCTTAACACCTGGCCTGCTTTCGATACGGGCAGNCTAGAGGTACNCAGGGGAGAATGGAATTC  
CTGGTGTAGCGGTGAAATGCGCAGATATCAGGAGGAAACACCGGTGGCGAAGNCGGTTCTCTGGGAGTATCCTGA  
CGCTGAGGAGCGAAAGTGTGGGGAGCGAACAGGATTAGATACCCTGGTAGTCCACACCGTAAACGTTGGGCGCTA  
GGTGTGGGACACATTCCACGTGTTCCGTGCCGCAGCTAACGCATTAANCGCCCCGCTGGGGAGTACGGCCGCAA  
NGCTAAACTCANAGGAATTGACGGGGGGCCCGCACAAAGCGGCGGA<sub>g</sub>CATGCGGATTAATTCGATGCAACGCGAAG  
AACCTTACCTGGGTTTGACATACACCGGAAAGCCGTACAGATACGGCCCCCTTTTAGTC<sub>g</sub>GTGTaCAGGTGGTGCA  
TGGCTGTCT<sub>g</sub>Ca<sub>g</sub>Ct<sub>g</sub>CTGTCTGTGAGATGTtCGGGTTAAGTCCCGCAACGAGCGCAaCCCTC<sub>g</sub>TCCTATGTTGC  
CaGCAATTCGGTTGgGGACTCATAGGA<sub>g</sub>ACTGCC<sub>g</sub>GGGTCaACTCGGAGGAAGGTGGGGATGACGTCAAGTCATC  
ATGCCCTTATGTCCAGGGCTTCACGCATGCTACAATGGCCGGTACAAGGGCTCGCATCCCGTGAGGGTGAGCG  
AATCCCAAAAAGCCGGTCTCAGTTGCGATTGGGGTCTGCAACTCGACCCCATGAAGTCGGAGTCGCTAGTAATCG  
CAGATCAGCAACGCTGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACGTACGAAAGTCGGCAAC  
ACCCGAAGCCANTGGCCCAACTCGTAAGAGAGGGAGCTGT

EN60

SEQ ID NO:18

ATGCAAGTNGAACGATGAANCCNTTTGGGGTGGATTAGTGGCGAACGGGTGAGTAANANGTGGGCAATTTGCCCT  
TCAATTTGGGAGAACGCCCTGGAAACGGGGTNTAATACCGGATAACANTNTGTCCCGCATGGGACGGGGTTAAAG  
CTCCGGCGGTGAAGGATGAGCCCGCGGCCTATNAGCTTGTGGTGGGGTGATGGCCTACCAAGGCGACGACGGGT  
AGCCGGCCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCCAGACTCCTACGGGAGGCAGCAGTGGGG  
AATATTGCACAATGGGCGAAAGCCTGATGCAGCGACGCCGCGTGAGGGATGACGGCCTTCGGGTTGTAAACCTTT  
TTCAGCAGGGAAGAAGCGAAAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAAATANGTGCCAGCAGCCGCGGTA  
ATANGTAGGGCGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGAGTTTGTAGGCGGCTTGTACGTTNGGATGTGA  
AAGCCCGGGGCTTAACCCCGGGTTTGCATTGATACGGGCTAGCTAGAGTGTGGTAGGGGAGATCGGAATTCCTG  
GTGTAGCGGTGAAATGCGCAGATATCAGGAGGAACACCGGTGGCGAAGGCGGaTcTcTGGGCCATTACTGACGNT  
GAGGAGCGAAAGCGTGGGGAGCNAACAGNATTAGATACCCTGGTAGTCCAAGCCGTAAACGTTGGGAACCTANGTG  
TTGGCGACATTCCACGTCGTCNNTGCCGCANCTAACGCATTAAGT<sub>T</sub>CCCCGCCTGGGGAGTACGGCCGCAAGGCT  
AANACTCAAAGGAATTGANGNNGCCCGCACAAAGCAGCGGAGCATGTGGCTTANTTCNACGCANCGCGAAGAACC  
TTACCAAGGTTTGCCATATAcCGGAA<sub>g</sub>CaTCa<sub>g</sub>AgAT<sub>g</sub>GTGCCCCCTtGTGGTCGGTATACAG<sub>g</sub>TGGTG<sub>C</sub>NTG  
GCTGTCTGTCa<sub>g</sub>CTCTGTCTGTGACAtGTtGGTTAA<sub>g</sub>TCCCGTCAaCGAG<sub>g</sub>CGCAACCCCTTGTNTGTGTNGCCAG  
CATGCCCTTCGGGGTGATGGGGACTCACAGGAGACTGCCGGGGTCAACTCGGAGGAAGGTGGGGACGACGTCAAG  
TCATCATGCCCCTTATGTCTTGGGCTGCACACGTGCTACAATGGCCGGTACAATGAGCTGCGATGCCGCGAGGCG  
GAGCGAATCTCAAAAAGCCGGTNTCAGTTCGGATTGGGGTCTGCAACTCGACCCCATGAAGTCGAGTTGCTAGT  
AATCGCAGATCAGCATTGCTGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACGTACGAAAGTCG  
GTAAACACCCGAAGCCGNTGG

18/30

[FIGURE 15 CONTINUED]

PM87

SEQ ID NO:24

GGCCCAGANATCCGNCTTCGCCACCGGTGTTCCCTCCTGAATATCTGCGCATTTACCGCTACACCAGGAATTCCG  
ATCTCCCCTACACACTCTAACTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCCCGGGCTTTACATCCGAC  
GTGACAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCCTACGTATTACCGCGGCTG  
CTGGCAGTAATTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCTTCTTCCCTGCTGAAAGAGGTTTACA  
ACCCGAAGGCCGTCATCCCTCACGCGGCGTCGCTGCATCAGGCTTTGCCCCATTGTGCAATATTCCCCACTGCTG  
NCTCCCGTANGAGTCTGGGCCGTGTCTCAGTCCCAGTGTGGCCGGTCGNCCTCTCAGGCCGGCTACCGTCGTGCG  
CTTGGTAGGCCATTACCCCAACAAGCTGATANGCCGNGGGCTCATCCTTCANCGTCGGAGCTTTCAANCCCG  
TCCATGCGGGACAGAGTGTTATCCGGTATTANACCCCGTNTCAGGGCTTGTCCANAGTGAAGGGCAGATNGCCAC  
GTGTTATCACCGTTCGCCACTAATNACANCGAACGGCTTATCGTNCGACTGCATGTGTTAACACNCGCAGCGTT  
CGTCCTGAGCCAG

19/30

FIGURE 16

EN5.

SEQ ID NO: 3

GTAATGGCCCANAAAACCGCCTTCGCCACCGGTGTTCCCTCCTGATATCTGCGCATTTACCGCTACACCAGGAAT  
TCCNATCTCCCCTACCACACTCTAGCTAGCCCGTATCNAATGCAAACTCGGGGTAAAGCCCNAGCTTTCACATC  
CGACGTGACAAGCCGCTACAANCTCTTTACGCCCAATAATTCCGGANAACGCTCGCACCCCTACNTNTTACCGCG  
GCTGCTGGCNCSTNTTTAGCCGGTGCTTCTTCTGCAGGTACCGTCACTTTCGCTTCTTCCCTGCTNAAAAAGGTT  
TACAACCTTANGGCCGT

EN6

SEQ ID NO: 4

TGAGGGATGACGGCNTTCGGGGTTGTAAACNTTTNTCACCAGGGAAGAAGCGAAAGTGNCGGTACCTGCAGAAGA  
AGCGCCGNTAACTACGGGCCAGCATCCGCGGTAAATACGTAGGGCGCAATCGTTGTCCGGAATTANTGGGCGTAA  
AGAGNTCGTAGGCGGCTTATCACGTCGGGTGTGAAGCCCCGGGCTTAAGCCCCGGGTCTGCATTTCGATACGGGC  
TAGCTAGANTNTGNTAGGGGAGATCGGAATTCCTGGTGTAGCGGTGAAATGCGCAGATATCAGGAGGAACACCGG  
TGGCGAAGGCGGATCTCTGGGCCATTACTGACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTAGATACCC  
TGGTAGTCCACGCCGTAAACGGTGGGAAGTGGTGTGGCGACATTCCACGTCGTCGGTGCCGCAGCTAACGCAT  
TAAGTTCCCCGCCTGGGGAGTACGGCCGCAAGGCTAAACTCAAAGGAATTGACGGGGGCCCCGACAAGCAGCGG  
AGCATGTGGCTTAATTCGACGCAACGCGAAGAACCTTACCAAGGCTTGACATACACCGGAAGCATCAGAGATGG  
TGCCCCCTTGTGGTGGTGTACAGGTGGTGCATGGCTGTCTGTCAGCTCGTGTCTGAGATGTTGGGTTAAGTCC  
CGCAACGAGCGCAACCCCTTGGTTCTGTGTGGCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGAGAACGCCG  
GGGTCAACTCGGAGGAAGGTGGGGACGACGTCAAGTCATCATGCCCTTATGTCTTGGGCTGCACACGTGCTACA  
ATGGCAGGTAAATGAGCTGCGATACCGTGAGGTGGAGCGAATCTCAAAAAAGCCTGTCTCANTTCGGATTGGGGT  
CTGNAANTCGACCCCATGAAAGTCGGAGTTGCTAATTATCCAGATCAACATTGCTGGCGGTGAATACGTTCCCG  
GGGCTTGGTAAACACCGCCCGTCAANGTNAAGAAAGTCGGGTAAACCCGAAANCCGGTGGGCCAANCCCT

EN7

SEQ ID NO: 5

CCGCCTTCGCCACCGGGTGTTCCCTCCTGATATCTGCGCATTTACCGCTACACCAGGAAATTCNATCTCCCCTA  
CCACACTCTANCTANCCCGTATCGAATGCAAAACCGGGGTAAANCCCCGGGCTTTACACCCGACNTGACAAGCC  
GCCTACAAACTCTTTACGCCCAATAATTCGGGACAACGCTTGCGCCCTACNTATTACCGCGGCTGCTGGCACNTA  
TTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTCGCTTCTTCCCTGCTGAAAAAGGTTTACAACCCGAAGGC  
CGTCATCCCTCACGCGGCGTCTGCTGCATCAGGCTTTCGCCCATTTGTGCAATATTCCCCACTGCTGCCTCCCTAG  
GAATCTGGGCGGTGTCTCAATCCAGTGTGGCCGGTCCCTCTCNGGCCGGTACCGTCNTCCCTTGGTNACCATT  
ANCTACCAACAACCTGATAGNCGCGGGCTCATCTTCACGCGGGAACCTTCAACCACC

EN9

SEQ ID NO: 6

GGCGGCGTGCTTAACACATGCAAGTCGAACGATGAAGCCCTTCGGGGTGGATTAGTGCGGAACGGGTGAGTAACA  
CGTGGGCAATCTGCCCTTCACTCTGGGACAAGCCCTGGAAACGGGGTCTAATACCGGATACGATTCTGAGGGCAT  
CTCCTGGTactGGAAAGCTCCGGCGGTGAAGGATGAGCCCGCGGCcTATCAGCTTGTTGTGGGTAAATGGCCTACC  
AAGGCGACGACGGgTAGCCGGCCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCCAGACTCCTACGG  
GAGGCAGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGCGACGCCGCTGAGGGATGACGGCCTTC  
GGGTTGTAAACCTCTTTCAGCAGGGAAGAAGCGAGAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAACTACGTG  
CCAGCAGCCGCGGTAAATACGTAGGGCGCAAGCGTGTCCGGAATTATTGGGCGTAAAGAGCTCGTAGGCGGCTTG  
TCACGTCCGGGTGTGAAAGCCCGGGCTTAACCCCGGGTCTGCATCCGATACGGGCAGGCTAGAGTGTGGTAGGGG  
AGATCGGAATTCTGGTGTAGCGGTGAAATGCGCAGATATCAGGAGGAACACCGGTGGCGAAGGCGGATCTCTGG  
GCCATTACTGACGCTGAGGAgCgAAAGCGTGGGGAGCCaACAGGATTAGATACCCTGGTAGTCCACGCCGTAAAC  
GTTGGAACTAGGTGTTGGCGACATTCCACGTCTCGGTGCCGACGTAACGCATTAAGTTCCCCGCcTGGGGAGT  
ACGGCCGCAAGGCTAAACTCAAAGGAATTGACGGGGGCCCGCACAAGCAGCGAGCATGTGGCTTAATTCGACG  
CAACGCGAAGAACCTTACCAAGGCTTGACATATACCGGAAAGCGCCAGAGATGGTGGCCCCCTTGTGGTCCGGTAT  
ACAGGTGGTGCATGGCTGTCTGTCAGCTCGTGTCTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCCTTGT

20/30

[FIGURE 16 CONTINUED]

CCTGTGTTGCCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGAGACCGCCGGGGTCAACTCGGAGGAAGGTGG  
GGACGACGTCAAGTCATCATGCCCTTATGTCTTGGGCTGCACACGTGCTACAATGGCCGGGTACAAAGAGCTGCG  
ATGCCGTGAGGCGGAGCGAATCTCAAAAAGCCGGTCTCAGTTGGGATTGGGGTCTGCAACTCGACCCCATGAAGT  
CGGAGTTGCTAGTAATCGCAGATCAGCATTGCTGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCA  
GTCACGAAAGTCGGTAACACCCGAAGCCGGTGGCCCAACCCCTCGGGAGGGAGCTGTCTGAAGGTGGGAC

EN17

SEQ ID NO:8

CCGCCTTCGCCACCGGTGTTCTCTCTGATATCTGCGCATTTACCGCTACACCAGGAATTCC  
NATCTCCCCTACCACACTCTAGCTAGCCCGTATCAAATGCAAACCCGGGGTTAAGCCCCGGGCTTTC  
ACATCCNACGTGACAAGCCGCCTACAANCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCCT  
ACNTATTACCGCGGCTGCTGGCACNTATTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCT  
NCTTCCCTGCTGAAANAGGTTTACAACCCAAAGGCCNTCATCCCTCNCCGGCNCNTTGCNTCNGGC  
TTNCNCCCATTTGTTCAANNTTCCCACTGCTNCCTCCCTCGGAATCTGGGCCGNTGTCTCATTTCCN  
TTNTGGCCGGTCCCCCTCNCAGGCCNGCTACCC

EN19

SEQ ID NO:9

CTCAGCGTCNGTAATGGCCCAAAAACCGCCTTCGCCACCGGTGTTCTCTCTGATATCTGCGCATTTACCGCTAC  
ACCAGGAATTCNATCTCCCCTACCACACTCTAGCTAGCCCGTATCNAATGCAAACCCGGGGTTAANCCCCGGGC  
TTTCACATCCNACNTGACAAGCCGCCTACAANCTCTTTACGCCCAATAATTCCGGACAACGCTTGCCNCCCTACTT  
ATTACCGCGGCTGCTGGCACTTATTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCTTCTTCCCTGCTN  
AAAAAGGTTTACAACCCNAAGGCCGTATCCCTCACGCGCNCCTGCTGCATCAGGCTTTCNCCCATTTGTGCAATA  
TTCCCCACTGCTGCCTCCCGTAGGATTCTGGGCCGNTCTCATTTCCANTGTGGCCGGTGCCTCTCAGGCCGG  
CTACCCGTCNCTGCTTGGTAGGCCATTACCCACCAACAAGCTNATAGGCCGCGGGCTCATCCTTACCGCCGG  
AAGCTTTCAACCCCNCTCATGCGGGANAAATTGTTNTCCGGTATTAAACCCCGTTTCCAGGGNTTGTCCCAAAAT  
TGAAGGGGGGATTGNCCACTTTTTACTCACCCGTTNCNCNTAATCCACCACC

EN26

SEQ ID NO:11

CCGCCTTCGCCACCGGTGTTCTCTCTGATATCTGCGCATTTACCGCTACACCAGGAATTCNATCTCCCCTACC  
GAACTCTANCTGCCCCGTATCNACTGCAAACCCGGGGTTAAGCCCCGGGCTTTCACAACCGACNTGACAAGCCGC  
CTACAANCTCTTTACNCCCAATAATTCCGGACAACGCTTGCGCCCTACNTATTACCGCGGCTGCTGGCACNTATT  
TAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCTTCTTCCCTGCTGAAAAAGGTTTACAACCCGAAGGCCG  
TCNCTCCCTCACGCGCGTGCCTGCATCAGGCTTTGCCCCATTGTGCAATATTCCCCACTGCTGCCTCCCGTAGGA  
TTCTGGGCCGTGTCTCANTCCANTNTGGCCGGTCCCCTCTCAGGCCGNTACCCGTCGTCCCTTGGTGAACCNC  
TACCTCNCAACAANCTGATAGGGCGCGGGCTCANCNTGCACGCCGGANCTTT

EN35

SEQ ID NO:14

AACACATGCAAGTCGAACGATGAAGCCGCTTCGGTGGTGGATTAGTGGCGAaCGGGTGAgtAACACGtGGCCAAN  
TGTGNCCGTCACTaTGGGACgAAGaCCTTGGAACCGGGGTCTAATACCGGATAACACTCTGTCCCGCATGGGACG  
GGGTTGAAAGCTCCGGCGGTGAAGGATGAGCCCGCGGCCTATCAGCTTGTGTTGGTGAATGGCCTACCAAGGC  
GACGACGGGTAGCCGGCCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCCAGACTCCTACGGGAGGC  
AGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGCGACGCCGCTGAGGGATGACGGCCTTCGGGTT  
GTAAACCTCTTTCAGCAGGGAAGAAGCGAAAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAACTACGTGCCAGC  
AGCCGCGGTAATACGTAGGGCGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGAGCTCGTAGGCGGCTTGTACG  
TCGGATGTGAAAGCCCGGGGCTTAACCCCGGGTCTGCATTCGATACGGGCTAGCTAGAGTGTGGTAGGGGAGATC  
GGAATTCCTGGTGTAGCGGTGAAATGCGCAGATATTACAGGAGGAACACCGGTGGCGAAGGCGGATCTCTGGGCCA  
TTACTGACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTATATACCTGGTAGTCCACGCCGTAAACGTTG  
GGAAGTACGTTGGCGACATTCCACGTCGTCGGTGCCGACAGTAAAGCATTAAAGTTCCCGCCCTGGGGAGTACG  
GCCGCAAGGCTAAAACTCAAAGGAATTGACGGGGGGCCGCACAAGCAGCGGAGCATGTGGCTTAATTTCGACGCAA  
CGCGAAGAACCTTACCAAGGCTTGACATATACCGGAAAGCATCagAGATGGTGCCCCCTTGTGGTGGTATACA

21/30

[FIGURE 16 CONTINUED]

GGTGGTGCATGGCTGTCGTCANCTCGTGTGCTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCTTGTTCT  
GTGTTGCCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGAGACTGCCGgGGTCAaCTCGGAGGAAGGTGGGGA  
CGACgTCaAGTCATCATGCCCTTATGTCTTGGGCTGCACACGTGCTACAATGGCCGCTACAATGACCTGCgATG  
CCGCGgAGGCgGACCGAATCTCAaACAAGCCCGTCTCATTGGGATTGCGGTCTGCaActcCGACCCCATgAAgTCC  
GACTtGCTAgTACTCGCACgTCAACaTtGCTGCGCTGaaTACgTCCCCGGGCCTTGTACACACCGCCCGTCACGT  
CACGAAAGTCGGTAACACCCGAAGCCGGTGGNCCAACCCCTTGTGGGAGGGAGCTGTGCAA

EN39

SEQ ID NO:15

ccgccttcgccaccggtgttcctcctgatatctgcgcatttcaccgctacaccaggaattccnatctcccctacc  
acactctagctancccgatcnaatgcaaaccgggggttaacccccgggctttcacaccnactnacaanccgc  
ctacaactctttacgccccataattccggacaacgcttgccgctacttattaccgcggtgctggcacttatt  
tagccggcgcttcttctgaggtaccgtcactttcgttcttccctgctgaaaaagggtttacaacccgaaggng  
tcatccctcacgcggtcgtgcatcaggctttcgccattgtgcaatattccccactgctgctcccgtagna  
ntctgggcggtntctcantcccagtggtgngcggtcgccctctcaggccgggtaccggtcgtcncctnggtnaacc  
attanntcaccaacaagctgataggccgcggtctatccttcaccgcccggagcttttaaccctgccccatgaaaa  
cagangtnttatccggtattanaacccggtttccaggg

EN57

SEQ ID NO:17

GTGCTTAACACATGCAAGTCGAACGATGAAGCCGCTTCGGTGGTGGATTAGTGGCGAACGGGTGAGTAACACGTG  
GGCAATCTGCCCTTCACTCTGGGACAAGCCCTGGAAACGGGGTCTAATACCGGATAACACTCTGTCCCGCATGGG  
ACGGGGTTGAAAGCTCCGGCGGTGAAGGATGAGCCCGCGGCCTATCAGCTTGTGGTGGGTAAATGGCCTACCAAG  
GCGACGACGGGTAGCCGGCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCCCAGACTCCTACGGGAG  
GCAGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGCGACGCCGCTGAGGGATGACGGCCTTCGGG  
TTGTAAACCTCTTTCAGCAGGGAAGAAGCGAAAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAACTACGTGCCA  
GCAGCCGCGGTAAATACGTAGGGCGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGAGCTCGTAGGCGGCTTGTC  
CGTCGGATGTGAAAGCCCCGGGGCTTAACCCCGGGTCTGCATTTCGATACGGGCTAGCTAGAGTGTGGTAGGGGAGA  
TCGGAATTCTTGGTGTAGCGGTGAAATGCGCAGATATNCAGGAGGAACACCGGTGGCGAAGGCGGATCTCTGGCC  
ATTACTGACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGTT  
GGGAAGTAGGTGTTGGCGACATTCCACGTCTGTCGGTGGCGCAGCTgAACGCATTAAGTTCCCCGCCTGGGGAGTA  
CGGCCGCAAGGCTAAAAGCTCAAAGGAATTGACGGGGGCCCCGACAAGCAGCGGAGCATGTGGCTTAATTGACGC  
AACCGGAAGAACCTTACCAAGGCTTGACATATACCGGAAAGCATCAGAGATGGTGCCCCCTTGTGGTTCGGTATA  
CAGGTGGTGCATGGCTGTGCTCAGCTCGTGTGCTGAGATGTTGGGTAAAGTCCCGCAACGAGCGCAACCCTTGTT  
CTGTGTTGCCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGAgACTGcCGGGGTCAACTCGGAGGAAGGTGGG  
GACGACGTCAAGTCATCATGCCCTTATGTCTTGGGCTGCACACGTGCTACAATGGCCGGTACAATGAGCTGCGA  
TGCCgCGAgGCGGAgCgAATCTCAAAAAGCCGGTCTCAGTTCGGATTGGGGTCTGCAACtCGACCCCATGAAGTC  
GGAgtTGCTAgTAATCgCAGATCAGCATTGCTGcGGTGAATACGTTCCCGGGCCTTGTACACACCGCCGTCAcGT  
CACGAAAGTCGGTaACACCCGAAGCCGGTGGCCCAACCgCCTTGTGGGAgGGAAGTTTCCA

22/30

FIGURE 17

SE1

SEQ ID NO:19

GAACGATGAAGCCGTTTCGGTGGTGGATTAGTGGCGAACGGTGAGTAAAAGTGGCAATTTNCCCTTCATTTTGA  
CAAGCCCTGGAAACGGGTTTAANACCGGATAACATTNTGTCCCGCATGGGACGGGGTTGAAAGNTCCCGGCGGTG  
AAGGATGAGCCCGCGGCNTATCAGCTTGTGGTGGGGTAATGGCCTACCAAGGCGACGACGGGTAGCCGGCCTGA  
GAGGGCGACCGGCCACACTGGGANTGAGACACGGCCAGACTCCTACGGGAGGCAGCAGTGGGGAATATTGCACA  
ATGGGCGAAAGCCTGATGCAGCGACGCCGCGTGAGGGATGACGGCCTTCGGGTTGTAAACCTNTTTCAGCAGGGA  
AGAAGCGAAAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAAATANGTGCCAGCAGCCGCGGTAATANGTAGGGC  
GCAAGCGTTGTCCGGAATTATTGGGCGTAAAGAGCTTGTAGGCGGCTTGTGANGTCGGATGTGAAAGCCCGGGGC  
TTAACCCCGGGTTTGCATTTCGATACGGGCTAGTTAGAGTGTGGTAGGGGAGATNGGAATTCCTGGTGTAGCGGTG  
AAATGCGCAGATATCAGGAGGAACACCGGTGGCGAAGGCGGATCTCTGGGCCATTACTGACGCTGAGGAGCGAAA  
CGGTGGGGAGCNAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGTTGGGAACTAGGTGTTGGCGACATT  
CCACGTCGTGCGTGCCGCGAGCTAACGCATTAAAGTTCCCCGCTGGGGAGTACGGCCGCAAGGCTAAAACCTCAAAG  
GAATTGACGGGGGGCCGCACAAGCAGCGGAGCATGTGGCTTAATTCGACGCAACGCGAACAACCTTACCAAGGCT  
TGACATATACCGGAAAGCATCANAGATGGTGCCCCCTTGTGGTGGTATACANGTGGTGCATGGCTGTCGTCAG  
CTCGTGTGTCGATGTTGGGTTANGTCCCGCAACGAGCGCNACCCTTGTCTGTGTGTCGNCNAGCATGCCCTTCG  
NGGTGATGGGGACTCACANGAGACTGNCGGGGTCCACTCGGAGGAAGGTGGCGACNACGTCANNTCATCATGCC  
CCTTATGTCTTGGGNTGGCCACGTGCNACNATGGCC

SE2

SEQ ID NO:20

GCTGGCGCGTGCTTAACACATGCAAGTGAACGATGAAGCCGCTTCGGTGGTGGATTAGTGGCGAACGGGTGAG  
TAACACGTGGGCAATCTGCCCTTCACTCTGGGACAAGCCCTGGAAACGGGGTCTAATACCGGATAAAGCTCTGTC  
CCGCATGGGACGGGGTTGAAAGCTCCGGCGGTGAAGGATGAGCCCGCGGCCTATCAGCTTGTGGTGGGTAATG  
GCCTACCAAGGCGACGACGGGTAGCCGGCCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCCAGACT  
CCTACGGGAGGCAGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGCGACGCCGCGTGAGGGATGAC  
GGCCTTCGGGTTGTAAACCTCTTTCAGCAGGGAAGAAGCGAAAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAA  
CTACGTGCCAGCAGCCGCGGTAATACGTAGGGCGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGAGCTCGTAGG  
CGGCTTGTACGTCGGATGTGAAAGCCCGGGGCTTAACCCCGGGTCTGCATTTCGATACGGGCTAGCTAGAGTGTG  
GTAGGGGAGATCGGAATTCCTGGTGTAGCGGTGAAATGCGCaGATATCAGGAGGAACAACGGTGGGgAAGgCGGA  
TCTCTGGGcCatTACTGACGCTGAGGAGCGAAAGCGTGGGGAAGCGAACAGGATTAGATACCCTGGTAGTCCAAGC  
CGTAAACGTTGGGAACTANGTGTGGCGACATTCCACGTCTCGGTGCCGAGCTAACGCATTAAGTTCCCCGTC  
CTGGGGAGTACGGCCGCNAGGCTAAAACCTCAAAGGAATTGACGGGGGCCCGCACAAAGCAGCGGAGCATGTGGCTT  
ANTTCGACGCNACGCGAAGAACCTTNCCAAGGCTGACATATACCGgAAAGCATCAcAGATGGTGGCCCCCTTGTG  
GTCCGTATACAGGgTGGTGCATGGCTGTtCGtCaGCTCGTGTGtGAGATGTTGGGTTAaGTCCCGCAAAGAGCG  
CAACCgTGTCTGTGTTGCCAGCATGCCCTTCGGGGTGTGGGGACTCacAcGAgACTGTCNGGGTCAACTCgga  
GGAAgGTGGgGACGACgTCAAGTtCATCATGCCCTTATGTCTTGGGCTGCACACNGCTACAATGGCCGGTACA  
ATGAGNNGGGATGCCGCGAGGCGGAGCGAATCTCAAAAAGCCGGTCTCAGTTCGGATTGGGGTCTGCAACTGACC  
CCATGAAGTCGGAGTTGCTAGTAATCGCAGATCAGCATTGCTGCGGTGAATACGTNCCCGGGCCTNGTACACACC  
ACCCGTACGTCACGAAAGTCGGTAACACCCTAAGCCGGTGNCCCAACCCCTTNTGGGAGG

23/30

FIGURE 18

PM36

SEQ ID NO:21

CCAGANATCCGCCTTCGCCACCGGTGTTCCCTCCTGATATCTGCGCATTTACCGCTACACCAGGAATTCCGATCT  
CCCCTACCACACTCTAGCTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCCCGGGCTTTACATCCGACGTGA  
CAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCCTACGTATTACCGCGGCTGCTGG  
CACGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTCGCTTCTTCCCTGCTGAAAGAGGTTTACAACCC  
GAAGGNCGTATCCCTCAGCGGGCGTGCCTGCATCAGGCTTTCGCCCATTGTGCAATATTCCCCTGCTGCCTC  
CCGTAGGAGTCTGGGNCGTGTTCAATNCCAGTGGTGGGCCGGTCGCCCTCTCAGGNCGGCTACCGTCTGCGCTT  
GGTAGGCATTACCACAACAAGCTGATAGGCGGGGTCATCCTTCAACGCCGGAGCTTCAAACCCGTCCATGCGGG  
ACAAGTGTATCCGGTATTAAACCC

PM40

SEQ ID NO:22

TCAGTNATGGCCCAAGANGATCCGNCTTCGCCACCGGTGTTCCCTCCTGATATCTGCGCATTTACCGCTACACCA  
GGAATTCCGATCTCCCCTACCACACTCTAACTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCCCGGGCTTTT  
ACATCCGACGTGACAAGCCGCCTACGAGCTCTTACGCCCAATAATTCCGGACAACGCTTGCGCCCTACGTATTA  
CCGCGGCTGCTGGCAGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTNACTTTCGCTTCTTCCCTGCTGAAAG  
AGGTTTACAACCCGAAGGCCGTCNTCCCTCAGCGGGCGTGCCTGCATCAGGCTTTCGCCCATNGTGCANTATTCC  
CCACTGNTGNCTCCCGTANGAGTCTGGGCCGTGTCTCAGTCCCAGTGTGGCCGGTCGNCCTCTCAGGCCGGCTAC  
CGTCTGTCGCTTGGTAGGNCATTACCCACCAACAAGCTGATANGTCGNGGGCTCATCCTTACCCGNCGGAGNTTT  
AACCCCGTNCATGCGGGACAGAGTGTTATCCGGTATTANACCCGTATNCAGGGCTTGTCCCATAGTGAAGGGNAG  
ATNGCCACGTGTTATACCGTTCGNCCTAATNATCANCGAANC GGCTTCATCGTTGCGACTTGCATGTGTTA

PM41

SEQ ID NO:23

CTCAGCGTCAGTCATGGCCAAGAGATCCGCCTTCGCCACCGGTGTTCCCTCCTGTATATCTGCGCATTTACCGCT  
ACACCAGGAATTCCGATCTCCCCTACCACACTCTAGCTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCCCGG  
GCTTTCACATCCGACGTGACAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCCTAC  
GTATTACCGCGGCTGCTGGCAGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTCGCTTCTTCCCTGC  
TGAAAGAGGTTTACAACCCGAAGGCCGTCATCCCTCAGCGGGCGTGCCTGCATCAGGCTTTCGCCCATTGTGCAA  
TATTCCTCCACTGCTGCCTCCCGTAGGAGTCTGGGCCGTGTCTCAGTCCCAGTGTGGCCGGTCGCCCTCTCAGGCC  
GGCTACCCGTCGTCGCCTTGGTAGGCCATTACCCACCAACAAGCTGATAGGCCGCGGGCTCATCCTTCANCGNCG  
GAGCTTTAACCCGTCCATGCGGGACAGAGTGTTATCCGGTATTAAACCCGTTTCAGGGCTTGTCCCANAGTGAAG  
GGCAGATTGCCACGTGTTATCANCCGTTTCGNCCTAATCACANCGAANC GGGTTCATCGTTGCGACTTGCATGTGT  
TAA

PM171

SEQ ID NO:25

CCCTCAGGGTCAGTAATGGGCCCAGAGATCCGCCTTCGCCACCGGTGTTCCCTCCTGAATATCTGCGCATTTACCC  
GCTACACCAGGAATTCCGATCTCCCCTACCACACTCTAGCTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCC  
CGGGCTTTCACATCCGACGTGACAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCC  
TACGTATTACCGCGGCTGCTGGCAGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTCGCTTCTTCCC  
TGCTGAAAGAGGTTTACAACCCGAAGGCCGTCATCCCTCAGCGGGCGTGCCTGCATCAGGCTTTCGCCCATTGTG  
CAATATTCCCCTGCTGCCTCCCGTAGGAGTCTGGGCCGTGTCTCAGTCCCAGTGTGGCCGGTCGCCCTCTCAG  
GCCGGCTANCCGTGCTCGCTTGGGTAGGCATTANCCCANCAACAAGCTGATAGGNCGGGGCTCATNCTTCAAC  
GCCGGAGCTTTCAANCCCGTCCATGCGGGACAGAGTGTTATNCGGTATTAAACCCGTTTCAGGGCTTGTTCAGA  
GTGAAGGGCAGATTGCCACGTGTTATCAACCGTTCGGCACTAATCACACGAAGCGGNTTATCGTTGCGACTTGCA  
TGTGTTAACAAGCCGCCAGCGTTTCGTC

24/30

[FIGURE 18 CONTINUED]

PM185-

SEQ ID NO:26

TCAGTAATGGCCCAGAGATCCGCCTTCGCCACCGGTGTTCTCCTGGATATCTGCGCATTTACCGCTACACCAG  
GAATTCGATCTCCCCTACCACACTCTAGCTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCCCGGGCTTTCA  
CATCCGACGTGACAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCCTACGTATTAC  
CGCGGCTGCTGGCACGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCTTCTTCCCTGCTGAAAGA  
GGTTTACAACCCGAAGGCCGTCATCCCTCACGCGGCGTCTGCTGCATCAGGCTTTGCGCCATTGTGCAATATTCCC  
CACTGCTGCCTCCCGTAGGAGTCTGGGCGGTGTCTCAGTCCCAGTGTGGCCGGTTCGCCCTCTCAGGCGGGCTACC  
CGTCGTCGCCTTGCTAGGCCATTACCCACCAACAAGCTGATAGGCCGCGGGCTCATCCTTCACCGNCGGAGCTT  
TAACCCCGTCCCATGCGGGACAGAGTGTATCCGGTATTAGAACCCGTTTCCAGGGCTTGTCAGAGTGAAGGG  
CAGATTGCCACGTGTTACTCANCCGTTTCGNCACTAATCANCAACGAAGCGGCTTCATCGTTGCACTTGCATGTGT  
TAAGCACGCCGNCAGCGTTCTGCTCCTGAGCCAGGATC

PM208

SEQ ID NO:27

TCAGTATCNGCCCAGAGATCCGCCTTCGCCACCGGTGTTCTCCTGATATCTGCGCATTTACCGCTACACCAG  
GAATTCGATCTCCCCTACCGAACTCTAGCCTGCCCGTATCGACTGCAGACCCGGGGTTAAGCCCCGGGCTTTCA  
CAACCGACGTGACAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCCTACGTATTAC  
CGCGGCTGCTGGCACGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCTTCTTCCCTGCTGAAAGA  
GGTTTACAACCCGAAGGCCGTCATCCCTCACGCGGCGTCTGCTGCATCAGGCTTTGCGCCATTGTGCAATATTCCC  
CACTGGTGNCTCCCGTANGAGTCTGGGGCGGTGTCTCANTCCAGTGTGGGCGGTTCGCCCTCTCAGGGCGGCTACCGT  
CGTCGCTTGCTGAGNCACTACTCACAAACAAGCTGATAGGCCGCGGGCTCATCTGGAACGGCGGAGCTTTACAC

PM228

SEQ ID NO:28

TCAGTAATGGCCCAGANATCCGNCTTCGCCACCGGTGTTCTCCTGATATCTGCGCATTTACCGCTACACCAGG  
AATTCGATCTCCCCTACCACACTCTAACTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCCCGGGCTTTCA  
ATCCGACGTGACAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCCTACGTATTACC  
GCGGCTGCTGGCACGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCTTCTTCCCTGCTGAAAGAG  
GTTTACAACCCGAAGGCCGTCATCCCTCACGCGGCGTCTGCTGCATCAGGCTTTGCGCCATTGTGCAATATTCCCC  
ACTGCTGCCTCCCGTANGAGTCTGGGCGGTGTCTCAGTCCCAGTGTGGCCGGTTCGCCCTCTCAGGCCGGCTACCG  
TCGTCGCCTTGCTAGGCCATTACCCACCAACAAGCTGATANGNCGNGGGCTCATCCTTCACCGNCGGAGCTTTCA  
ANCCCGTCCCATGCGGGACAGAGTGTATCCGGTATTAAACCCGTTTCCAGGGCTTGTCATAGTGAAGGGCAGA  
TTGCCAAGTGTATCANCCGTTTCGNCACTAATCATCANCAAGCGGCTTCATCGTTGCACTGCATGTGT

PM252

SEQ ID NO:29

TCCTCAGNATCAGTAATGGCCCAGAGATCCGCCTTCGCCACCGGTGTTCTCCTGATATCTGCGCATTTACCGC  
TACACCAGGAATTCGATCTCCCCTACCACACTCTANCTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCCCG  
GGCTTTCACATCCGANGTGACAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAANGCTTGCGCCCTA  
CGTATTACCGCGGNTGCTGGCACGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCTTCTTCCCTG  
CTGAAAGAGGTTTACAACCCGAAGGCCGTCATCCCTCACNCGGCGTCTGCTGCATCAGGCTTTGCGCCATTGTGCA  
ATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGGCGGTGTCTCAATCCANTGTGGCCGGTTCGCCCTCTCANGC  
CGGCTACCGTCTGCTTGCTAGGCCATTACCCACCAACAAGCTGGATAGGNCGGGGGCTCATCTTCACCGCC  
GGAAGCTTTAANCCCGTCCATGCGGGANANAGTGNATCCCNGTATTAAACCCNGTTTCAGGGCTTGTCANAGTG  
AAGGGNGATTGCCNAGTGTATCNCCCGTTTCGCCANTAATCNACAACGAAGCGGNTTCNTCGNNTTCGACTTG  
C



25/30

[FIGURE 18 CONTINUED]

PM342

SEQ ID NO:30

TAATGGCCCAGAAATCCGCCTTCGCCACCGGTGTTCCCTCCTGAATATCTGCGCATTTCACCGCTACACCAGGAA  
TTCCGATCTCCCCTACCACACTCTAGCTAGCCCGTATCGAATGCAGACCCGGGGTTAAGCCCCGGGCTTTCACAT  
CCGACGTGACAAGCCGCCTACGAGCTCTTTACGCCCAATAATTCCGGACAACGCTTGCGCCCTACGTATTACCGC  
GGCTGCTGGCACGTAGTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTCGCTTCTTCCCTGCTGAAAGAGGT  
TTACAACCCGAAGGCCGTCATCCCTCACGCGGCGTGGCTGCATCAGGCTTTCGCCCATTGTGCAATATTCCCCAC  
TGCTGCCTCCCGTAGGAGTCTGGGCGGTGTCTCAGTCCCAGTGTGGCGGTGCGCCCTCTCAGGCCGGNTANCCGTC  
GTCGCTTGGTANGCCATTANCCCCACCAACAAGCTGATANGCCGNGGGCTCATCCTTCANCGCCGGAGCTTTTAA  
CCCCGTCCCATGCGGGACAGAGTGTTATCCGGTATTAGATCCCGTNTCCAGGGCTTGTNCATAGTGAAGGGCANA  
TTGCCACGTGTTACTCANCCGTTCGC

26/30

FIGURE 19

EN4

GGCGGCGTGCTTAACACATGCAAGTCGAACGATGAACCACTTCGGTGGGGATTAGTGGCGAACGGGTGAGTAACA  
CGTGGGCAATCTGCCCTTCACTCTGGGACAAGCCCTGGAAACGGGGTCTtAATACCGGATAACACTCCCACICTC  
CTGAGTGGGGTTAAAAGCTCCGGCGGTGAAGGATGAGCCCCGGGCCATCAGCTTGTTGGTGAGGTAATGGCTC  
ACCAAGGCGACGACGGGTAGCCGGCCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCCCAGACTCCTA  
CGGGAGGCAGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGCGACGCCCGTGAGGGATGACGGCC  
TTCGGGTTGTAAACCTCTTTTCAGCAGGGAAGAAGCGAAAGTGACGGTACCTGCAGAAGAAGCGCCGGCTAACTAC  
GTGCCAGCAGCCGCGGTAAATACGTAGGGCGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGAGCTCGTAGGGCGG  
TTGTACAGTCCGGGTGTGAAAGCCCGGGCTTAACCCCGGGTCTGCATTTCGATACGGGCTAGCTAGAGTGTGGTAG  
GGGAGATCGGAATTCTTGGTGTAGCGGTGAAATGCGCAGATATTACAGGAGGAACACCGGTGGCGAAGGCGGATCT  
CTGGGCCATTACTGACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTAGATACCCTGGTAGTCCACGCCGT  
AAACGGTGGGAAGTGGTtGTTGGCGACATTCCACGTCTGTCGGTGCCGCAGCTAACGCATTAAGTTCCCCGCGCTG  
GGGAGTACGGCCGCAAGGCTAAACTCAAAGGAATTGACGGGGGCGCACAAGCAGCGGAGCATGTGGCTTAAT  
TCGACGCAACGCAAGAACCTTACCAAGGCTTGACATACCCGGAAGCATCAGAGATGGTGCCCCCTTGTGGT  
CGGTGTACAGGTGGTGCATGGCTGTCTCAGCTCGTGTCTGAGATGTTGGTTAAGTCCCGCAACGAGCGCAAC  
CCTTGTTCTGTGTTGCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGAGACCGCGGGGTCAACTCGGAGGAA  
GGTGGGGACgACGTCAAGTCATCATGCCCTTATGTCTTGGGCTGCACACGTGCTACAATGGCAGGTACAATGAG  
CTGCGATACCGTGAGGTGGAGCGAATCTCAAAAAGCCTGTCTCAgTTCGGATTGGGGTCTGCAACTCGACCCcaT  
GAAGTCGGAGTTGCTAGTAATCGCAGATCAGCATTGCTGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCC  
GTCACGTACGAAAGTCGGTAACACCCGAAGCCGGTGGCCCCAACCCCTTGTGGGAGGGAGCTGTCAAGGTGGGA  
CTGGCGATTGGG

EN10

GAGTTTGATCANNGGCTCAGACGAACGCTGGCGGCGTGTTAACACAANCCAAGTCGAANGNTGAACCACTTCGTTG  
GGATTAGTGCGAACGGTGNTAACACGNTGGCAATGTGCCCTTCACTNTGGGACAAGNCCTGGAAACGGGGTTCTA  
ATACCGGATACCACTACCCGCAGGCATCTGTGGTGTGTTGAAAGCTCCGCCGTGAAGGATGAGCCCCGGGCCAT  
CAGCTTGTTGGTGAGGTAATGGCTCACCCAAGGCGACGACGGATAGCCGGCCTGAGAGGGCGACCGGCCACACTG  
GGACTGAGACACGGCCAGACTCCTACGGAGGCAGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAG  
CGACGCCGCGTGAGGGATGACGGCCTTCGGGTTGTAAACCTCTTTTCAGCAGGGAAGAAGCGAAAGTGACGGTACC  
TGCAGAAGAAGCGCCGGCTAACTACGTGCCAGCAGCCGCGGTAAATACGTAGGGCGCAAGCGTTGTCCGAATTAT  
TGGGCGTAAAGAGCTCGTAGGGCGGCTTGTACGTGCGGTGTGAAAGCCCCGGGGCTTAACCCCGGGTCTGCATTCC  
ATACGGGCTAGCTAGAGTGTGGTAGGGGAGATCGGAATTCCTGGTGTACCCGGTGAAATGCGCAGATATCAGGAG  
GAACACCGGTGGCGAAGGCGGATCTCTGGGCCATTACTGACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGAT  
TAGATACCCTGGTAGTCCACGCCGTAAACGGTGGGAAGTGGTGTGGCGACATTCCACGTCGTGGTGCCGCAG  
CTAACGCATTAAGTTCCCCGCTGGGGAGTACGGCCGCAAGGCTAAACTCAAAGGAATTGACGGGGGCCCCGCAC  
AAGCAGCGGAGCATGTGGCTTAATTCGACGCAACGCGAAGAACCTTACCAAGGCTTGACATACGCCGGAAGCAT  
CAGAGATGGTGCCCCCTTGTGGTGGTGTACAGGTGGTGCATGGCTGTCTCAGCTCGTGTCTGTGAGATGTTGG  
GTTAAGTCCCGCAACGAGCGCAAcCCTTGTCTGTGTTGcCAGCATGCCCTTCGGGGTGATGGGGACTCACAGGA  
GACCGCCGGGGTCAACTCGGAGGAAGGTGGNGACGACGTcAgATCATCATGCCCTTATGTCTTGGGGCTGCACA  
CGTGCTACNATGgCaGGTACAATGAGCTGCGATACCGTGAGGTGGAGCgCATCTnnnnnAGCctGTCTCAGTTC  
GgATTGGGGTCTGcAACTCGACCCCaTGAAGTCGgAGTTGCTAgATAATCgCAgATCAGCATTGctGCGgTGAAT  
ACGttCCCCGGCCTTGTACACACCGCCCGTCACGTACGAAAGTCGGTAACACCCGAAGCCGGTGGCCCCAACCC  
TTGTGGGAGGGAGCTGTCAANGTGG

27/30

[FIGURE 19 CONTINUED]

EN22

TCCTCAGCGTCAGTAATGGCCCCAAAACCGCCTTCGCCACCGGTGTTCTCTCTGATATCTGCGCATTTACCCGCT  
ACACCAGGAATTCCNATCTCCCCTACCACACTCTAGCTAGCCCGTATCNAATGCAAACCCGGGTAAANCCCCGG  
GCTTTCACATCCNACNTGACAAGCCGCCTACAANCTCTTTACGCCCAATAATTCCGGACAACNCTTGCGCCCTAC  
TTATTACCGCGGCTGCTGGCACTTATTTAGCCGGCGCTTCTTCTGCAGGTACCGTCACTTTGCTTCTTCCCTGC  
TGAAAAAGGTTTACAACCCNAAGGCCGTCATCCCTCACGCGGNTCNCCTGCATCAGGCTTTCNCCCATTGTGCAA  
TATTCCTCCACTGCTGCCTCCCGTAGGATTCTGGGCCGTNTCTCANTCCANTGTGGCCGGTCGCCCTCTCAGGCC  
GGCTACCCGTCGTCNCCTTGGTAGGCCATTACCCCNCCAACAANCTGATAGGCCGCGGGCTCNCCTTACCCGCC  
GGAGCTTTCAACCCCGTCCCATGCGGGANAAANTGTTNTCCGGTATTAAAACCCGTTTCCAGGGNTTGTCCAAA  
TTGAAGGGNANATTGCCCACTTTTTNNTCACCCTTCCCCACTAATCCACCACCGAA

EN30

TGGNGGNGTGCTTAACACATGCAAGTCGAACGATGAANCCTTTCGGGGTGGATTAGTGGCGAACGGGTGAGTAAC  
ACGTGGGCAATCTGCCCTTCACTCTGGGACAAGCCCTGGAAACGGGGTCTAATACCGGATAACACTCTGTCCCGC  
ATGGGACGGGGTTAAAAGCTCCGGCGGTGAAGGATGAGCCCCGCGCCTATCAGCTTGTTGGTGGGGTGATGGCCT  
ACCAAGGCGACGACGGGTAGCCGGCCTGAGAGGGCGACCGGCCACACTGGGACTGAGACACGGCCAGACTCCTA  
CGGGAGGCGAGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGCGACGCCGCTGAGGGATGACGGCC  
TTCGGGTTGTAAACCTCTTTCAGCAGGGAAGAAGCGTGTGTCGGGAATTATTGGGCGTAAAGAGCTCGTANGCGGC  
GTGCCAGCAGCCGCGTAATACGTAGGGCGCAAGCGTTGTCGGGAATTATTGGGCGTAAAGAGCTCGTANGCGGC  
TTGTACGTCGGATGTGAAAGCCCCGGGGCTTAACCCGGGTCTGCATTCGATACGGGCTAACTAAAATGTGGTAGG  
GGAGATCGGAATTCTCTGGTGTANCGGTGAAATGCGCAGATATCAAGAGGAACANCGGTGGCGAANGCGGATCTCT  
GGGCCATTACTGACGCTGAGGAGCGAAAGCGTGGGAGCGAACAGGATTAGATACCCTGGTAGTCCACGCCGTAA  
ACGTTGGGAAGTGGTGTGGCGACATTCCACGTCGTCGGTGCCGCGAGCTAACGCATTAAAGTTCCCCGCTGGGG  
AGTACGGCCGCAAGGCTAAAAGTCAAAGGAATTGACGGGGGGCCGCAAGCAGCGGAGCATGTGGCTTAATTCTG  
ACGCAACGCGAAGAACCTTACCAAGGCTTGACATATACCGGAAAGCATCAGAGATGGTGCCCCCTTGTGGTCTGG  
TATACAGGTGGTGCATGGCTGTCGTCAGCTCGTGTGAGATGTTGGGTAAAGTCCCGCAACGAGCGCAACCCCT  
TGTTCTGTGTTGCCAGCATGCCCTTCGGGGTGATGGGACTCACAGGAGACTGCCGGGGTCAACTCGGAGGAAGG  
TGGGACGACGTCAGTCATCATGCCCTTATGTCTTGGGCTGCACACGTGCTACAATGGCCGGTACAATGAGCT  
GCGATGCCGCGAGGCGGAGCGAATCTCAAAAAGCCGGTCTCAGTTCCGATTGGGGTCTGCAACTCGACCCCATGA  
AGTCGgAGTTGCTAgTAATCgCAgATCAgCATTGCTGCGGTGAATACgTTNCCGGGCCtGTACAcACCGCCCGT  
CACGTCACgAAAGTCGGTAACACCCGAAGNCCGGTGGTCCAACCCCTTGTGGGAGGGAGACTGTCGAAGGTGGGA  
CTGGCGATTGG

EN43

CTCAGCGTCACTATCGGCCCAAANACCGCCTTCGCCACCGGTGTTCTCTCTGATATCTGCGCATTTACCCGCTA  
CACCAGGAAATTCCANTCTCCCCTACCGAACTCTANCCTGCCCGTATCAACCGCAGGCTTGGGGTTAAGCCCCAA  
TTTTTCACGGTCAACGCNACAAGCCGCTACAAGCTCTTTACGCCCAATAAATCCGGACAACGCTCGCACCCCTAC  
TTCTTACCGCGGCTGCTGGCACTTATTTGGCCGGTGCTTCTTCTGCAGGTACCGTCACTCTCGCTTCTGCTCCCTGC  
TNAAAAAGGTTTACAACCCGAAGGCCGTCATCCCTCACGCGGNTCGCTGCATCAGGCTTCCGCCCATTTGTGCAA  
TATTCCTCCACTGCTGCCTCCCGTAGGATTCTGGGCCGTNTCTCANTCCAGTGTGGCCGGTCGCCCTCTCAGGCC  
GGCTACCCGTCTGCTGCCTTGGTAGGCCATCACCCACCAACAAGCTGATAGGCCGCAAGCCCATCCCAAGCCGA  
AAAATTTCCACCACCAGCCATGCGGCCAAAATTCCTATTCCGGTATTAGCCCCGTTTCNAAGGTTNTCCCAA  
GCTTGGGGCAGGTTGCTCACTTTTTACTCACCCGTTCCCGCTCAATTACCCCNAAAGGGGNTTTCCTCAACTTGC  
AT

28/30

[FIGURE 19 CONTINUED]

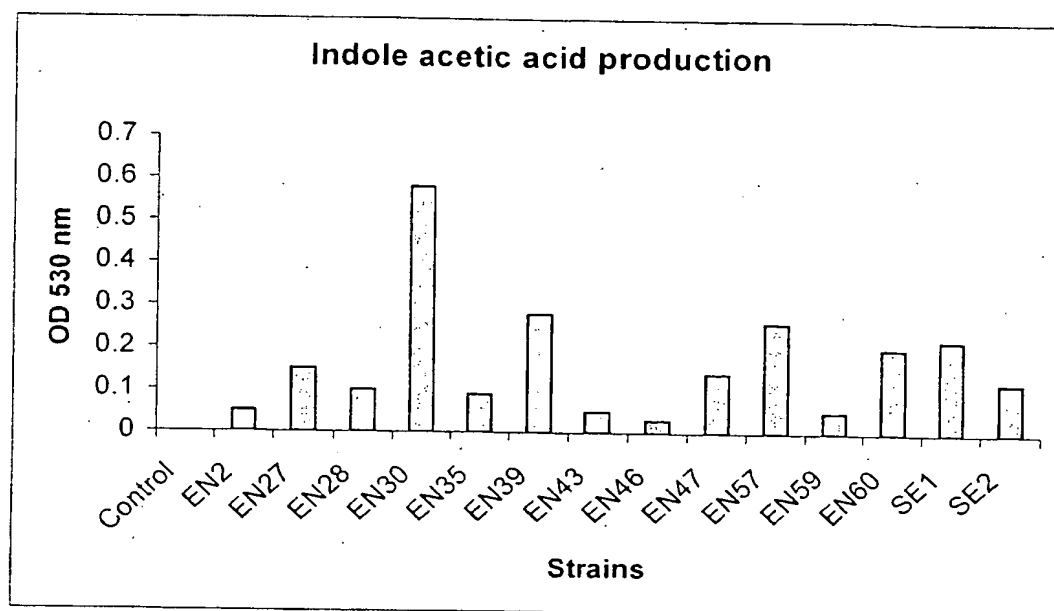
EN47

CGCTGGCGGCGTGCTTAACACATGCAAGTCGAGCGGAAAGGCCCTTCGGGgTACTCGAGCGGCGAACGGGTGAGT  
AACACGTGAGTAATCTGCCCCAGGCTCTGGGATAGCCACCGGAAACGGTGATTAATACCGGATACGACAACCGAT  
TGCATGATCTGGTTGTGGAAAGTTTTTCGGCCTGGGATGTGCTCGCGGCCCTATCAGCTTGTTGGTGAGGTAATGG  
CTCACCAAGGCTTCGACGGGTAGCCGGCCTGAGAGGGTGACCGGCCACACTGGGACTGAGACACGGCCCAGACTC  
CTACGGGAGGCAGCAGTGGGGAATATTGGACAATGGGCGGAAGCCTGATCCAGCAACGCCCGCTGAGGGATGACG  
GCCTTCGGGTTGTAAACCTCTTTCAGCACAGACGAAGCGCAAGTGACGGTATGTGCAGAAGAAGGACCGGCCAAC  
TACGTGCCAGCAGCCGCGGTAATACGTAGGGTCCGAGCGTTGTCCGGAATTATTGGGCGTAAAGGGCTCGTAGGC  
GGTCTGTGCGCTCGGGAGTGAAAACCAGGTGCTTAACACCTGGCCTGCTTTCGATACGGGCAGACTAGAGGTACT  
CAGGGGAGAATGGAATTCCTgGTGTAGCGGTGAAATGCGCAGATATTTCAGGAGGAACACCGGTGGCGAAGGCGGT  
TCTCTGGGAGTATCCTGACGcTTGAAGAGCGAAAGTGTTGGGGAGCGAACAGGATTAGATANTNTGGTAGTCCACA  
CCGTAAACgTTGGGCGcTAGgTGTGGGACACATTCCACGTGTTCCGTGCCGCAGCTAACGCATTAAGCGCCCCGC  
CTGGGGAGTACGGCCGCAAGGCTAAAACCTCAAAGGAATTGACGGGGGCCCGCACAAAGCGGCGGAGCATGCGGATT  
AATTCGATGCAACGCGAAGAACCTTACCTGGGTTTGACATACACCGGAAAGCCGTAGAGATACGGCCCCCTTTTAG  
TCGGTGTACAGGTGGTGCATGGCTGTCTGCTCAGCTCGTGTCTGTGAGATGTTGGGTTAAGTCCCGAACGAGCGCAA  
CCCTCGTCCTATGTTGCCAGCAATTCGGTTGGGGACTCATAGGAGACTGCCGGGGTCAACTCGGAGGAAGGTGGG  
GATGACGTCAAGTCATCATGCCCCCTTATGTCCAGGGCTTCAGTCGATTGGGGTCTGCAACTCGACCCCATGAAGTC  
TCCCGTGAGGGTGAGCGAATCCCAAAAAGCCGGTCTCAGTTCGGATTGGGGTCTGCAACTCGACCCCATGAAGTC  
GGAGTCGCTAGTAATCGCAGATCAGCAACGCTGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACG  
TCACGAAAGTCGGCAACACCCGAAGCCAGTGGCCCAACCCTTGTGGGGGGAGCTGTGCAAGGTGGGGCTGGCGAT  
TG

EN59

GGGNATTAGTGGGGAACGGGTGAGTAAAANGTGGCCANTTTCCCTGNATTTTGGACANCCCCNGGAAANGGNTT  
NTAAACNGGATANTGACCACCTTGGCATCCAAGTTTTNGAAACTTCCGGCGGTGCAGGATGAGCCNGCGGCNTA  
TNAGCTTGTTGGNGAGGTAATGGNTCACCAAGGGGANGACGGGTAGCCGGCCTGAGAGGGGACCNGCCACANTGGG  
ANTGAGANACGGCCCAGANTCCTACGGGAGGCAGCAGTGGGGAATATTGCACAATGGGCGAAAGCCTGATGCAGG  
ANNCCGCGTGAGGGANGACGGCCTTNGGGTTGTAAACNTTTTTNAGCAGGGAAGAAGCGAAAGTGACGGTACCTG  
CAGAAGAAGCGCCGGCTAAATAAGTGCCAGCAGCCGCGGTAATAAGTAGGGNGCGAGCGTTGTNCGGAATTATTG  
GGNGTAAAGAGTTTGTAGGCGGNTTGTNAAGTNGGTTGTGAAAGCCCCGGGNTTAACCCCGGGTTTGCAGTTGAT  
ACGGGCAGGNTAGAGTTCGGTAGGGGAGATNGGAATTCCTGGTGTAGCGGTGAAATGCGCAGATATCAGGAGGAA  
CACCGGTGGCGAAGGCGGATCTCTGGGCCATTACTGACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTAG  
ATACCTTGAGTCCACGCGTAACGGTGGGAACCTAGGTGTTGGCGACATTCCACGTGCTCGGTGCCGCAGCTA  
ACGCATTAAGTTCCCCGCTGGGGAGTACGGCCGCAAGGCTAAAACCTCAAAGGAATTGACGGGGGGCCCGCACAAAG  
CAGCGGAGCATGTGGCTTAATTCGACGCAACGCGAAGAACCTTACCAAGGCTTGACATACACCGGAAAGCATCAG  
AGATGGTGCCCCCTTGTGGTGGTGTACAGGTGGTGCATGGCTGTCTGTCAGCTCGTGTGAGATGTTGGGTT  
AAGTCCCGCAACGAGCGCAACCCTTGTCTGTGTTGCCAGCATGCCCTTCGGGGTGTGGGGACTCACAGGAGAC  
CGCCGGGGTCAACTCGGAGGAAGGTGGGGACGACGTCAAGTCATCATGCCCCCTTATGTCTTGGGCTGCACACGTG  
CTACAATGGCCGTACAAAGAGCTGCGATACCGTGAGGTGGAGCGAATCTCAAAAAGCCGGTCTCAGTTCGGATT  
GGGGTCTGCAACTCGANCCCATGAANTCGGAGTTGCTAATTAATCGCAAAATCAAGCATTGCTGGCGGTGAATAC  
GTTCCC

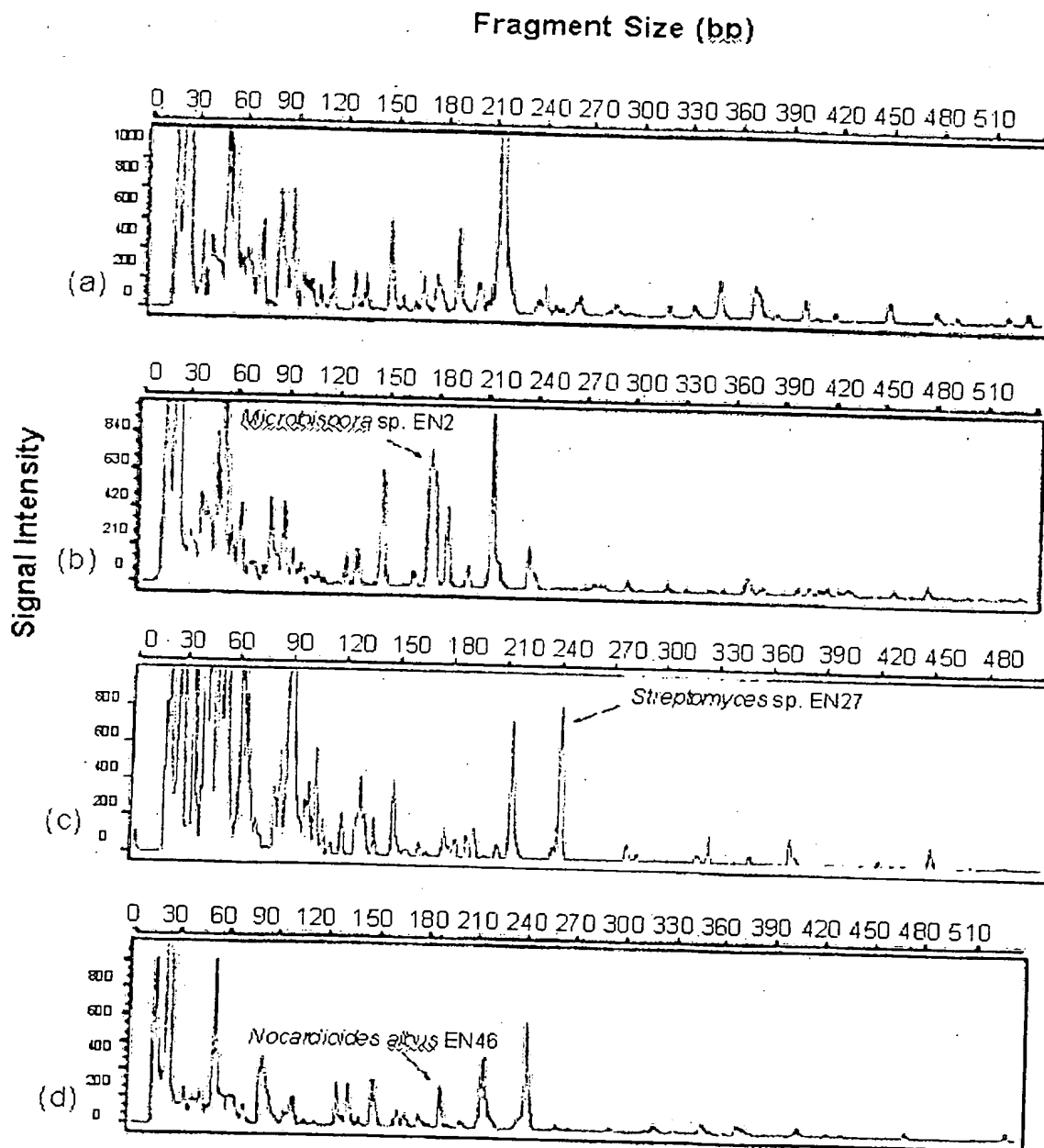
29/30



**Figure 20**

30/30

Figure 21



**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**